Harveian Lectures

ON THE

HEART IN ITS RELATION TO PREGNANCY, PARTURITION, AND THE PUERPERAL STATE.

Delivered before the Harveian Society on Dec. 5th, 12th, and 19th, 1895,

BY MONTAGU HANDFIELD-JONES, M.D. LOND.,

OBSTETRIC PHYSICIAN TO ST. MARY'S HOSPITAL, AND LECTURER ON MIDWIFERY AND DISEASES OF WOMEN TO ST. MARY'S MEDICAL SCHOOL; PHYSICIAN TO THE BRITISH LYING-IN HOSPITAL; EXAMINER IN MIDWIFERY TO THE CONJOINT EXAMINING BOARD FOR ENGLAND.

LECTURE II.[1]

Delivered on Dec. 12th, 1895.

MR. PRESIDENT AND GENTLEMEN,—Having established that disorders of compensation and weakening of the muscular tissue of the heart by fatty degeneration are the two principal evils to which the heart, whether sound at the onset of pregnancy or weakened by the presence of valvular disease, is exposed during pregnancy, parturition, and the puerperal state, we may proceed now to study the existence of heart failure in either of these three stages.

I.—HEART FAILURE DURING PREGNANCY.

It will be convenient under this heading to regard (1) those cases in which failure on the part of the left ventricle is most obvious and gives rise to special trouble; (2) those cases in which the symptoms point principally to weakness of the right ventricle; and (3) instances of failure due to fatty degeneration.

1. Failure of left ventricle.

In his Clinical Lectures on Diseases of Women Dr. Matthews Duncan says: "It is only recently that great care has begun to be paid to the bearings of disease of the heart upon pregnancy and parturition; I know of none paid to the bearings of disease of the heart upon abortion. It is a subject well worthy of attention and study." It is now more than ten years ago since the above quotation arrested my attention, and during this time I have endeavoured, both in my private and hospital practice, to trace how far a connexion exists between morbid conditions of the heart and the occurrence or recurrence of abortion. So far as my researches into the literature of the subject have gone, I cannot discover that any great advance has been made in our knowledge of the relations between heart condition and abortion, or that any writer has endeavoured to follow out the investigation suggested by Dr. Matthews Duncan's words. The pathology of intra-uterine death has been ably treated by Sir William Priestley in his Lumleian Lectures, but even here I have failed to find anything more than a passing reference to the influence exerted by cardiac conditions on the progress of pregnancy. In his work on "Heart Disease during Pregnancy" Dr. Angus Macdonald has, it is true, pointed out that in a large proportion of cases of mitral stenosis pregnancy is terminated by the onset of spontaneous premature labour; and Duroziez, in his paper on "Pure Stenosis of the Mitral," remarks that this lesion is apt to be accompanied by a special tendency to the occurrence of abortion and premature delivery; but both these writers dwell more extensively on the onset of premature delivery in the later weeks of pregnancy, and confine their attentions principally to mitral valvular disease. How great an influence valvular disease of the heart may have in determining the occurrence of abortion, and what the relative value of the individual forms of valvular disease may be to each other in this respect, I am not yet prepared to state; but, so far as my observations have at present led me, I am inclined to think that the presence of valvular disease does not, broadly speaking, interfere materially with the progress of pregnancy, provided that sufficient compensatory hypertrophy of the muscular walls be present. Putting aside, then, for a time the consideration of valvular affections, we shall endeavour to judge whether the absence or insufficiency of the usual hypertrophy of the left ventricle, which should accompany every pregnancy, is a not uncommon cause of the occurrence and recurrence of premature emptying of the uterus in the earlier months of pregnancy. We have already accepted the theory of hypertrophy of the left ventricle in pregnancy as a proven fact, and may now formulate that if the overgrowth is absent or insufficient the heart will, as pregnancy advances, show signs of failing power, and, conversely, that if the left ventricle does exhibit symptoms of failing during the progress of gravidity, we may reasonably assume that the compensatory hypertrophy is either wanting or else insufficient in degree. Another point for our consideration is this: the condition of the systemic circulation at its periphery depends very largely on the mode of action of the left ventricle. If the latter is healthy, vigorous, and possesses good driving-power, then, *ceteris paribus*, the circulation in the arterioles and capillaries is brisk, the walls of the small vessels are normal and intact, and leaking or extravasation does not take place. If, on the contrary, the left ventricle is acting in a failing or imperfect fashion, either from weakness of the muscular wall or from defects in its valvular apparatus, then the blood stream at the far points will be sluggish, the walls of the arterioles and capillaries will tend to become unhealthy, and dropsy or small hæmorrhages are very likely to take place. Having briefly considered these points, we may now pass on and review some cases which serve to illustrate abortion due to cardiac failure. I have not included under this heading any cases of valvular disease, as I wish to point out the effect of weakness of the left ventricle apart from the consideration of mechanical conditions dependent on valvular insufficiency.

CASE 1.—A woman aged thirty-four, married for fourteen years, was of large and flabby build. She came to my out-patient department complaining of frequent miscarriages. Her history was as follows. She had given birth after marriage to two healthy full-term children, the two pregnancies following each other rather closely; then she had had seven miscarriages, the last only a fortnight previously. Her health had never been good since the last full-term pregnancy; during and after this she had suffered with palpitation, shortness of breath, and inability for much exertion. All her miscarriages had taken place between the end of the third and fourth months. According to her own account she usually felt fairly well until well advanced into the third month of her pregnancies, then she began to suffer from great shortness of breath, palpitation, precordial pain, and swelling of the legs. This state of things became intensified gradually, and then abortion followed. Examination of the heart showed that the apex-beat was hardly defined and very feeble: it was slightly outside the vertical nipple line; there was no valvular bruit, but the first sound was short and feeble. The area of cardiac dulness was, if anything, somewhat increased. A mixture of ammonia and digitalis was prescribed, and ten grains of saccharated carbonate of iron were ordered to be taken morning and evening. Under this treatment she improved materially and again became pregnant. When three months' gone she was still doing well; the swelling of the legs and other signs of cardiac failure had not appeared. Wishing, however, to give the heart every chance, I took her into the New Boyton Ward, St. Mary's Hospital, and gave her the opportunity of complete rest, good feeding, and freedom from muscular strain. Under this *régime* she went on well and reached safely the sixth month of pregnancy; then, feeling herself so well and thinking herself safe, she returned home, resumed her laborious occupation, became rapidly worse, and miscarried at the end of the sixth month. Had she remained in the hospital quietly I think there is little doubt she would have gone to full term. A vaginal examination was made in this case on several occasions, during both the pregnant and non-pregnant states, and beyond a slight bulkiness of the non-gravid uterus nothing abnormal could be detected. There was no evidence of any syphilitic taint. It is rather noteworthy that this patient had only two sisters, and that each of these women had valvular disease of the heart—one mitral stenosis and the other a mitral systolic murmur.

CASE 2.—A married woman aged thirty-two, fairly healthy-looking, had been pregnant five times, but had never carried a child up to full term. With her first two pregnancies she went as far as six months and then miscarried; with her last

[1] Lecture I. was published in THE LANCET of Jan. 18th, 1896.

three she only reached the fifth month. Her family history was good, and after careful investigation no trace could be discovered of a syphilitic taint. Vaginal examination revealed a perfectly normal condition of her uterus and its appendages. In the account she gave of her various pregnancies there was, however, one constant symptom which was very suggestive, and that is that in all her pregnancies she had suffered from repeated attacks of fainting. On each occasion when she had been in the family way these attacks of fainting had set in towards the end of the third month and continued until the pregnancy closed, becoming more frequent and worse in the later months. In the intervals between her pregnancies she was free from this symptom. When I saw her for the first time, soon after the close of her fifth pregnancy, a very careful examination of the heart was made, but no sign of hypertrophy of the left ventricle could be discovered; there was no displacement of the apex, no increase in the area of cardiac dulness, and no murmur or other modification of the sounds could be heard, except a weakness and shortness of the first sound heard at the apex. Thinking the cause of the frequent miscarriages and faintings was probably due to insufficient cardiac power, I determined, should she again become pregnant, to direct my attention to stimulating the heart. In November, 1884, she ceased to menstruate, and I at once prescribed cardiac tonics for her, made her take a certain amount of stimulant, and regulated her exercise and muscular exertions; through the whole of this pregnancy she was entirely free from any fainting or cardiac distress and, having gone up to the end of the eighth month of gestation, was delivered of a healthy male infant.

CASE 3.—A married woman aged thirty-five gave the following interesting history. Always fairly strong and well, she married at twenty-two and had her first child at full term about ten months after marriage. Nothing noteworthy occurred in this pregnancy, but about a year later she passed through an acute and prolonged attack of rheumatic fever. From this she recovered without any valvular lesion apparently, but as she suffered from shortness of breath on exertion, palpitation, and indifferent health, it is probable that the heart did not altogether escape damage. While in this state of health she became pregnant, but miscarried at the end of the second month; when she again became pregnant she aborted at the end of the third month. After this she did not become pregnant for a year or more, and meanwhile, under medical treatment, her health greatly improved. In her next pregnancy she went nearly her full term, but had great swelling of the legs in the later months, accompanied by breathlessness on exertion, palpitation, and faintings. Next followed four miscarriages, each terminating about the end of the fourth month and each accompanied by signs of cardiac failure; then came a considerable rest from child-bearing. Some years later a living child was born at full term, but in the later months of this pregnancy dropsy of the lower extremities and of the abdomen, faintings, and dyspnœa were very marked. Soon after this she came under my care, and her health became gradually much improved before she again became pregnant. As soon as she reached the second month of utero-gestation she was put on iron and digitalis, with occasionally small doses of strychnine. She was made to live on one floor and forbidden to go upstairs, as all severe muscular exertion was prohibited. Through this pregnancy the patient passed comfortably, with no œdema of the legs, no fainting, and very little evidence of any cardiac failure.

CASE 4.—A married woman aged thirty-nine came to see me in January, 1892. She was a delicate-looking woman, but stated she had always enjoyed fair health and, with the exception of scarlet fever when nine years old, had never had any serious illness. She was married at the age of twenty, and her child-bearing history was as follows. After marriage four healthy, full-term children were born; then she had four consecutive miscarriages, all of which occurred in the fourth month of utero-gestation; upon these came a living full-term child, and this was followed by three miscarriages, two of which were in the fourth month. The last miscarriage took place in August, 1891. The patient stated that she noticed that she became very breathless when pregnant and that after the second month she was subject to constant faintings. After the last miscarriage in August of last year her lips were very purple for some hours. At the time of her visit, though hardly two months advanced in her pregnancy, she was complaining of breathlessness and faintings on exertion and her lips were livid. Examination of the heart showed that the area of dulness was decidedly increased; the apex beat was diffuse and situated outside the vertical nipple line. There was no distinct murmur to be heard anywhere, but the first sound at the apex was suggestive of dilatation. The pelvic and other large organs were found to be healthy. A mixture of iron with carbonate of ammonia and ether was ordered, and the patient made to lie upon a couch for the greater part of the day. All severe exertion or strain was forbidden. In April the report was as follows: "Much better; no fainting; breathlessness very little marked; sleep and appetite fair; some heartburn; otherwise fairly well. Pregnancy proceeding satisfactorily." In January, 1893, the patient called to say that she had enjoyed good health through the remaining part of her pregnancy and that she had been delivered at full term of a healthy child.

It would be easy to quote from my notebook many similar cases which illustrate equally well the relation of an overstrained heart to abortion, but the four just narrated will serve as a sufficient text for my argument. Very little study of the cases just quoted suffices to establish beyond doubt that the heart was on each occasion unequal to its work. Making all allowance for the unstable equilibrium of the nervous system which attends every pregnancy, yet the repeated faintings, the œdema of the lower extremities, the palpitation, the dyspnœa, and other signs all pointed unmistakably to cardiac failure. Again, it is impossible not to connect this failure most intimately with increase in size of the gravid uterus, for the symptoms of heart distress commenced in most cases during the third month (when the heart was beginning to feel an increasing strain) and grew decidedly worse as pregnancy advanced, only ceasing, as a rule, when delivery had supervened and the mother's circulation had returned to its normal condition. That the want of power in the heart's action is due to an absence of the normal compensatory hypertrophy seems almost certain. The actual confirmatory proofs of the post-mortem room are fortunately absent; but the feeble, diffuse apex-beat, the soft, short first sound at the apex, and the character of the sphygmographic tracing all point to the same conclusion. It is equally clear that the condition of the heart before the onset of pregnancy and the degree to which the compensatory hypertrophy is absent will play an important part in determining (1) how soon the signs of cardiac insufficiency will manifest themselves, and (2) how marked those symptoms will be.

Pathological appearances.—The ova expelled by the uterus in these cases presented a fairly constant appearance; when examined shortly after expulsion they were found to be dotted over with small hæmorrhages, varying in size from a split pea to a threepenny-piece, varying, too, in colour according as the extravasation of blood had been recent or of some standing. The hæmorrhage had clearly taken place between the wall of the uterus and the membranes; in a few instances large blood clots were found, but usually the hæmorrhages were small in size.

Theory of abortion.—It is not difficult now to follow out the course of events and see how premature expulsion of the ovum is effected. The first factor in the chain of events is the enfeebled power of the left ventricle; as a result of this the blood-stream no longer passes briskly through the small vessels of the periphery, but is driven in a sluggish manner from artery to vein. The inevitable effect of this is that the walls of the arterioles and capillaries rapidly deteriorate, commence to bulge, and then to leak, and thus blood extravasations are frequently permitted. This process is seen to perfection if a piece of pia mater or omentum, through the vessels of which a sluggish blood current has been passing for some time, is examined under the low power of a microscope; bulging and spoilt vessel walls with small extravasations are seen everywhere. Each small extravasation between the uterine wall and the membranes of the ovum separates the latter partially from the uterus, and when sufficient separation has occurred the ovum becomes practically a foreign body, and as such is cast off, or, in other words, abortion occurs. Confirmation of the correctness of this theory—namely, that the ovum is gradually separated from the uterine walls by these small extravasations—is afforded by the clinical fact that small and repeated blood losses per vaginam often take place in these cases for many days before final expulsion of the ovum occurs.

Treatment.—If we accept the views propounded as correct our treatment becomes at once clear. It is briefly to spare the heart as much as possible by maintaining the recumbent

posture largely and by avoiding any severe muscular exercise, and at the same time, by good hygiene, liberal diet, stimulants, and cardiac tonics, to improve the nutrition of the organ.

2.—Failure of Right Ventricle.

Hitherto we have dealt exclusively with failure of the left ventricle and have seen its effect in interfering with the course of pregnancy; now, as we turn to study failure in connexion with the right side of the heart, we shall see that equally disastrous consequences may follow incompetency of the right ventricle. Situated as the latter is between the systemic venous circulation and the pulmonary circulation, failure in its mechanism is naturally liable to lead to more extensive disaster. Most of the authors who have written on cardiac failure in connexion with child-bearing seem to admit that two principal sources of trouble arise in connexion with an embarrassed right heart—viz., (1) pulmonary troubles, and (2) premature labour. Thus Dr. Angus Macdonald says: "Symptoms of evil omen arise chiefly in the region of the lesser circulation, present themselves in the form of extreme dyspnœa, suffocation, bronchial catarrh, œdema of the lungs, &c., are extremely apt to be complicated by the spontaneous onset of *premature labour*, and frequently end in death either during delivery or the childbed period. The urgent symptoms seldom occur till the first half of the pregnancy is past and increase as the period of utero-gestation advances, provided premature labour does not come on." Spiegelberg also is of the opinion that from over-distension of the pulmonary channels symptoms of disturbed pulmonic circulation may gradually appear *during the pregnancy*, especially within the later months, or suddenly if from any cause the diaphragm is persistently kept in the position of expiration. Even under such conditions of mechanically obstructed pulmonary circulation competency may be established by hypertrophy of the right ventricle, and the symptoms may subside rapidly after labour; sometimes an aggravation of the symptoms, with dyspnœa, pulmonary catarrh, pulmonary œdema, general œdema, &c., may result. All the distressing and dangerous symptoms attain alarming proportions during the labour, which is usually "premature." In cases of mitral insufficiency it is not a matter of wonder if the right heart should fail, for, as M. Michel has pointed out, there is a double reason to expect the heart, when pre-existently diseased, to give rise to such serious complication during pregnancy—first, because the total amount of blood is augmented in the pregnant female, and, secondly, because her left ventricle is hypertrophied. In all his cases except one he found the lesion to be restricted almost entirely to the smaller circulation. Clearly in all these instances the safety of the patient turns upon a compensatory increase in the power of the right ventricle. Should this latter prove unequal to the strain thrown upon it, pulmonary circulatory troubles must gradually supervene and the patient's life be rapidly brought into a condition of imminent peril. Not only, however, may difficulties in connexion with the circulation in the lungs be brought about by weakness of the right ventricle, but obstruction may be offered to return of venous blood from the systemic circulation, and congestion of the pelvic and other viscera may ensue. This point is illustrated by the menorrhagia and metrorrhagia which are sometimes present in cases of chronic bronchitis complicated by emphysema and dilatation of the right heart. Quite recently a patient aged about forty-five years was admitted into the New Boynton Ward of St. Mary's Hospital complaining of profuse monthly losses and intermittent metrorrhagia. Chronic bronchitis was present, and the right ventricle was weak and dilated. Absolute rest in bed, with the help of cardiac tonics and treatment adapted to the pulmonary troubles, brought about a rapid improvement in the cardiac condition. It was interesting to note how, as the heart's action improved, cure of the metrorrhagia and menorrhagia was *pari passu* obtained.

It has already been shown that in these instances of right heart failure premature delivery is a fairly frequent event. All the writers on heart disease in connexion with pregnancy call attention to the frequency with which pregnancy is brought to a close in the latter months, when failure of the right heart is present. Budin asks, while it is true that pregnancy has often a disastrous effect upon pre-existing cardiac derangements, is it not equally true that cardiac disorders are, in a certain number of cases, the cause of abortion and premature delivery? M. Peter, again, in his treatise published in 1869, considers that the death of the fœtus in these cases depends upon maternal asphyxia. Duroziez, also, in a paper brought by him before the Medical Society of Paris, declares that the life of the child is considerably endangered by cardiac mischief in the mother. Abortions are common, he says, and frequently the fœtus is born at seven and a half months. Berthiot comes to a similar conclusion, and states that abortions and premature deliveries are common in cases in which cardiac mischief is present. He believes that in 50 per cent. of the cases cardiac affections lead to the premature expulsion of the ovum, and traces the cause to the serious troubles which arise in the circulation consequent on the presence of mischief in the heart. Just as the lungs are the oxygenating apparatus of the mother, so the placenta is the medium through which the fœtal blood gains oxygen; when from some cause or other the placental circulation is impeded, the same symptom is produced in the fœtus as in the adult who has pulmonary congestion—viz., asphyxia. One of the constant effects of cardiac failure, sooner or later, is the accumulation of blood in the venous system, and so is brought about a true stasis, which leads to multiple congestions, which occur in the utero-placental system as well as in other viscera. As a secondary result of the interference with the intra-placental circulation there is soon brought about a marked alteration in the chemical characters of the blood. Now the child is dependent on the mother's blood for oxygen, and if this is withheld asphyxia must ere long ensue and death of the fœtus necessarily result. Berthiot has made an ingenious suggestion to account for those cases in which, though the birth of the child takes place in the seventh or eighth month—i.e., prematurely—yet the infant is born living. He suggests that the disorder of the placental circulation, though insufficient to produce asphyxia in the fœtus, may yet, owing to imperfect nutrition, lead to a fatty degeneration of the placental tissue, and consequently may develop a premature labour. He gives as an example a case of a woman who was suffering from mitral insufficiency and stenosis, and in whom labour came on prematurely. After delivery the placenta was found to be most markedly fatty. The following description is given of the organ. The placental mass is rounded in form; at its edges it is extremely thin and formed of a whitish-grey tissue. In almost its entire extent it has undergone fatty degeneration. This latter change does not exist in scattered islets or foci, but all the cotyledons are more or less invaded—it is, to speak correctly, a diffuse degeneration. In certain parts the whole of the cotyledons are in a state of fatty degeneration; in others, the half, or two-thirds, only have undergone the change; as a result the colour of the tissue is a greyish-white at some points and a rosy-white at others. Two-thirds at least of the whole of the placenta are altered. At no point does there exist a hæmorrhagic focus. Histological examination confirms the naked-eye appearances. In the pinkish parts chorionic villi are found possessing their normal volume and presenting vessels still distended with blood. While in the whitish portions the villi are very small, as if atrophied, they are empty of blood and are infiltrated with small deposits of granular fat; the bloodvessels which run to these white portions are fibroid and very resistant.

In regarding this subject of failure of the right ventricle it is interesting to notice in what a large percentage of recorded cases the mischief occurs in women who have already given birth to several children, or, in other words, who have passed through several confinements without any evidence of heart failure. Of course, it is often exceedingly difficult in cases of valvular disease to know at what exact date the endocarditis began, but in many instances it is fair to assume that the patient was suffering from mitral insufficiency when passing through her former accouchements. The inference must necessarily be that the condition of the muscular walls of the heart is of more importance in any pregnancy than the diseased condition of the valves. In studying the cases of mitral stenosis recorded by Dr. Angus Macdonald we find that a large majority had passed through five or six healthy pregnancies and labours before the pregnancy commenced in which evidence of heart failure occurred, and the same truth is noted if we consult the works of other writers. The observation is of importance, as it suggests that valvular disease in itself is no reason for forbidding marriage, provided the muscular tissue of the heart seems sound; but, on the other hand, it does give us a warning that a patient with valvular disease should be advised to content herself with three or four pregnancies at

the most, and should not run the risk of weakening her heart-walls by exposing them "repeatedly" to the strain of child-bearing.

3.—Failure due to Fatty Degeneration.

In dealing with fatty degeneration of the muscular tissue of the heart as a cause of cardiac failure in the latter weeks of pregnancy I must own that we have to deal less with the region of clinical experience and have to rely more on hypothesis, or, rather, theoretical probability. Still, there is a certain amount of post-mortem evidence, combined with the belief of skilled observers, to support our contentions. Porak, in his thesis upon the Mutual Influence of Pregnancy and Diseases of the Heart, calls attention to the fact that not infrequently at the necropsies of women who have died from cardiac troubles associated with pregnancy the heart is found to be greyish, soft, and flabby, and regrets that in these cases the presence of fatty degeneration has not been more often demonstrated by microscopical observation. He asserts that examples of fatty degeneration of the heart, recorded as having been observed during labour, are not rare, and believes it to be the cause of sudden death. Ollivier, in his memoir published in the *Archives de Médécine* (1873), says that he has often known this degeneration to exist in women recently delivered. Virchow[2] states that it is not rare to find this fatty degeneration pushed to such a point that one is tempted to ask whether it is not produced by special conditions, such as occur in poisoning by phosphorus. Cohnstein, in making necropsies of twenty women who had died during or shortly after labour, found distinct fatty degeneration of the heart muscle in three of these cases. Unfortunately, as Porak observes, in the necropsies of women dying during pregnancy or labour the heart too often escapes observation, and the pathologist is content to record some alteration of colour or consistency without obtaining definite proof of the existence of fatty degeneration. It is not, however, with cases of coarse, advanced, fatty heart that we need concern ourselves at present; cases are quoted by Moynier, Churchill, Mordret, More Madden, Bichat, and many others which have for the moment greater interest for us. Thus Davis,[3] under the heading of "Labour complicated with Dangerous Fainting," narrates a case of a poor woman, a patient of the Royal Maternity Charity, who, after having been six or eight hours in labour, died suddenly in the effort of micturating. Up to this time she was in good health and was not at all exhausted by the labour. At the post-mortem examination no departure from the natural or healthy condition of the heart or of any of the great vessels was found, or, in other words, there was no naked-eye appearance sufficient to account for death. Dr. More Madden,[4] writing on Sudden Death after Parturition, says: "In some cases no cause whatever was discovered by pathologists who sought to investigate the reason of the fatal event." Dr. Chisholm[5] relates a case of arm presentation in which he turned and delivered easily; there was no more difficulty or hæmorrhage than usual, and yet seven days later, when sitting up in bed after having taken her breakfast as usual, the patient was seized with a pain in the back which made her scream out; shortly afterwards she fell back fainting, and, having made an imperfect rally from this, soon fainted again and expired. A post-mortem examination threw no light upon the cause of death; there were no signs of asphyxia in the lungs and no traces of disease anywhere; but the heart was rather softer and paler than usual and uncontracted, with clots in all its cavities. Again, Mr. Denman narrates a case of a patient who made some slight exertion soon after delivery; she fell back and died immediately. At the necropsy nothing morbid was found—the heart was flaccid, somewhat enlarged, and empty of blood. In another case related by Mr. Merriman fainting occurred several times, followed by recovery, but at last in one of the syncopal attacks the patient died. Numbers of similar cases are quoted by McClintock, Danyan, Dubois, Moreau, and Baudelocque; but I need not weary you with further examples. In all of them the history is very similar; there is fainting, recurring either shortly before, during, or at a variable time after delivery; the fainting may or may not depend on some muscular exertion or other cause embarrassing the heart; and in one of these faints the patient dies. A post-mortem examination is made and nothing amiss is discovered, or, at the most, the heart is found to be pale, flaccid, and empty or distended with blood. I fail to find any minute description of the microscopical appearances of the muscular structure of the heart, and this is greatly to be regretted, as it would be invaluable in weighing the probabilities of the cause of death.

It will be interesting, before proceeding further, to note some of the causes of death assigned by various writers to these cases. Dr. Churchill, in his work on Midwifery, asks: "What is the condition which gives rise to this fatal syncope?" and says: "We know little or nothing." It does not depend upon hæmorrhage or the shock of labour or fear, for the distance of time from the labour in many cases shows that from such effects, if they existed, the patient must have recovered; they appear, in fact, to be cases of *cardiac paralysis*. Modret, in trying to find an explanation for the cases in question, inquires: "Has an inappreciable molecular change in the composition of the nerves come on—a sort of animal isomorphism which has changed the arrangement of their elements, and in virtue of which they have become unfit for the fulfilment of their functions? Or has the mind, oppressed under the weight of a powerful emotion, ceased its functions without any change having taken place in the organs which it brings directly into play?" Then another cause has been formulated by Chevallier, Morgagni, and Christison, and dignified with the name of "idiopathic asphyxia." It is somewhat difficult to know what the originators of this term wished to imply by it. If they employed the term "asphyxia" in its conventional sense and meant to attribute death to non-aeration of the blood, owing to some fault in the working of the lungs, then neither by symptoms nor by post-mortem evidence is their explanation warranted. If, on the other hand, they were speaking as purists and understood by "asphyxia" simply absence of pulse, then the term "idiopathic asphyxia" is only another expression for syncope. Dr. Warren of Boston propounds the hypothesis that the blood remains in the capillary system from inertia of that system or from excessive activity of the heart. Owing to the fact that in a certain number of cases sudden death has taken place after the patient has indulged in a hearty meal or after she has taken indigestible substances, some writers have put down these cases of sudden death to the embarrassing action of a distended stomach on the heart. So also strong moral impressions, fear, joy, shame, sinister presentiments of ill, shock, depression, cold, &c., have all been brought forward at various times to explain the unfortunate ending. I do not for one moment wish to speak lightly of these explanations or deny their baneful effect. I do not in the least doubt their efficacy in determining the fatal issue; but it is well that they should be held in their proper place as secondary causes—as the last straws which break, so to speak, the patient's back—and not be regarded as prime factors, to the exclusion of other and more important considerations. No one will, I think, deny that every now and then pregnancy has a most harmful influence on the heart. A woman lately under my care suffered for months after her second pregnancy with cardiac troubles; palpitation, breathlessness, faintness, and distress on slight exertion were most marked, and only disappeared after a year or more of treatment and rest. In another case the patient has since her first confinement had an irregular and intermittent pulse, while her general condition has been one of decidedly enfeebled health. Dr. Ollivier believes that the formative stimulus which causes the hypertrophy of the left ventricle may overstep the margin and give rise to myocarditis or fatty degeneration. I should object to this last hypothesis, and rather urge that during the process of *cardiac involution*, which should follow delivery, fatty metamorphosis is established, and according to the date and degree of this latter so is the danger incurred. If we recognise the facts that normal cardiac hypertrophy does accompany pregnancy, and that after pregnancy the heart does normally return to its former condition, and if we allow that the latter is due to a process of retrograde fatty metamorphosis, then we shall have no difficulty in seeing that a very slight deviation from the process exposes the patient to considerable risk, and that in the consideration of this risk we find a scientific explanation of many cases of sudden death otherwise unexplainable.

The course of every process, physiological or morbid, constantly presents considerable deviations from the normal track, and so we should expect to find here. The process of cardiac involution may set in prematurely before delivery

[2] Sitzung der Berliner Geburtshülflichen Gesellschaft, 1870.
[3] Obstetrical Medicine, vol. ii., p. 1023.
[4] American Journal of Obstetrics, August, 1891.
[5] Churchill's Midwifery, p. 629.

is accomplished, and weaken the heart before the strain of labour has been encountered: it may go on to an excessive amount, though occurring at a normal time, and leave the patient exposed to the risks of fatal syncope on slight exertion; it may, though normal in time and amount, yet be accomplished with undue rapidity, and thus leave the heart temporarily at a disadvantage and unequal to its functions. If once we recognise cardiac enfeeblement consequent on the process of fatty metamorphosis as the primary lesion it is easy to understand how undue muscular strain, sudden emotion, flatulence, or depressing causes may embarrass the already weakened organ and bring about a fatal result.

II.—HEART FAILURE DURING PARTURITION.

In considering the subject of heart failure during the act of delivery we may say at once that primary heart failure during this period is rare. Of course, if labour comes on prematurely in any patient in whom the heart has already, during the latter part of pregnancy, shown signs of incompetency the mischief will be greatly increased or even rendered fatal by the strain of parturition, but it is the exception to find marked instances of the heart showing distinct evidence of incompetency for the first time during the progress of labour. On the other hand, as we shall see later, it is quite common to meet with cases in which the strain of parturition seems to have been the determining factor in producing a dangerous condition of cardiac weakness. The following cases, however, show that a heart which has been quite equal to its work during the whole period of pregnancy may not prove equal to the extra pressure thrown upon it during the stages of labour.

CASE 1.—The patient was a delicate-looking married woman aged about twenty-seven. Her first confinement was in all respects normal. The history of this, her second, accouchement is as follows. She had enjoyed fair health through the present pregnancy, but had led a quiet life, as she had not felt sufficiently strong to stand much fatigue. On the morning of Sept. 21st, while still three weeks from full term, her waters broke, and on the morning of the 22nd pains began sharply at 7 A.M. Soon after sharp labour pains had become established she had a fainting attack, and this had been repeated at intervals up to 11 A.M. The head slowly advanced until the vertex was almost resting on the perineum. By this time, however, the condition had become rather alarming; fainting fit followed fainting fit; the pulse was 120, weak, intermittent, and irregular; pain was complained of over the precordial area, and the respiration was shallow and hurried. Forceps were rapidly applied, the head was delivered, and the labour terminated. Absolute rest in the recumbent position was insisted upon, and brandy freely exhibited. In a few days the pulse-rate had sunk to 90, and the heart rhythm had again become regular. It was interesting to note that heart failure began in this case during the second stage of labour, and became more and more marked as this stage advanced. As the fainting attacks were becoming more and more pronounced it is only too probable that death would have ensued but for the timely relief afforded by the use of the forceps.

CASE 2.—A young married woman aged twenty-six, pregnant for the first time, was a patient of the maternity department, St. Mary's Hospital. All through her pregnancy she enjoyed very good health and went her full time before the onset of labour commenced. There was nothing specially worthy of note in the progress of the first stage, but in the second stage, when the head was coming down on to the pelvic floor, and pains were following each other sharply and at five-minute intervals, the patient became a little faint. At the conclusion of a rather strong pain she raised herself on her elbow, asked for some milk to drink, and then, lying down, again fainted and died. At the necropsy everything seemed normal; but the heart was flaccid and its chambers were full of blood. The muscular tissue of the heart did not appear unhealthy, but on microscopical examination the pathologist stated that there was clear evidence of marked fatty degeneration in the muscular fibres. Here, again, there was no sign of cardiac failure during the course of the pregnancy, but the strain of muscular exertion during the second stage proved too much for a heart already weakened by fatty degeneration.

CASE 3.—This case is of interest in connexion with the administration of chloroform during labour. The patient was a young woman aged twenty-two, a patient of the British Lying-in Hospital. She was a feeble, strumous subject. There were scars under her lower jaw where gland abscesses had broken and cicatrised, and her right hip-joint was ankylosed owing to old tuberculous mischief in the head of the bone. Towards the close of the second stage her pains became so feeble and ineffectual, and her pulse-rate began to rise so markedly, that it was necessary to apply forceps. As she refused to allow this unless chloroform were given, a little of the drug was cautiously administered. I had hardly commenced the administration when the patient's face became cyanosed, the pulse vanished from the wrist, and death was imminent. With the help of artificial respiration and brandy the pulse was kept going, but I never saw a patient nearer death's door. Needless to say, I finished the labour without further use of anæsthetics. Chloroform is generally considered to be so safe in labour that this case is of interest as showing that a heart may be so weak and strained under some conditions that the use of the drug is no longer advisable.

Dr. Angus Macdonald, after narrating a case of mitral stenosis in which signs of cardiac failure or embarrassment were present during labour, says it is worthy of remark how sharply the second stage of labour was defined from the first in so far as seriousness of symptoms was concerned. All went well during the first stage, but apparently, as soon as the additional pressure upon the vascular system called forth by the down-bearing pains became operative, serious symptoms supervened. The pulse became quick and irregular, the patient felt excessively distressed, and had it not been that this stage was short, it is beyond question that the patient's life would have rapidly been in great jeopardy. This case, therefore, illustrates the very great effect of the down-bearing pains in straining the weakened powers of an already enfeebled or diseased heart, and supports to the full my contention that it is not any sudden diminution of arterial pressure, arising, as Spiegelberg suggests, from the removal of the placental circulation, that we have to fear as the cause of sudden death during labour, but rather the presence of the extra pressure arising out of the down-bearing efforts. According to my view the danger from disturbed pressure is passed as soon as the child is expelled, and not only beginning then, as Spiegelberg would have us believe.

A Clinical Lecture

ON

DEMENTIA RESULTING FROM POISONING BY CARBON MONOXIDE.

Delivered at the Glasgow Royal Infirmary on June 20th, 1895,

BY ALEXANDER SCOTT, M.D. GLASG.,

ASSISTANT PHYSICIAN TO THE INFIRMARY; CERTIFYING FACTORY SURGEON, TOLLCROSS, ETC.

GENTLEMEN,—This morning I have to lecture to you on the case of a patient aged forty-one years who has been under our care for the last thirteen weeks. He suffers from dementia, from a deficiency rather than an aberration of the intellect, resulting from blood poisoning by the inhalation of carbon monoxide. Whether we study this case from a pathological or a physiological point of view it is intensely interesting. Looking at him as he now sits before you, you cannot detect any lack of intelligence, any paralysis, or, indeed, even the most remote sign of idiocy or imbecility. By careful observation you may notice that he sometimes stares at an object, but this, I think, is due to some defect in his range of accommodation, and does not indicate want of thought. About 2 o'clock on the morning of March 20th last I was called to the Clyde Ironworks to attend to this patient, who was said to be dead or dying from suffocation with gas from the ammonia works which are connected with the blast furnaces. This unfortunate man had been found lying in front of one of the flues apparently dead, and had been immediately hauled out, after having been exposed to the noxious vapours for ten minutes. I found him sitting on a chair supported by two men and quite insensible. His face was ghastly pale, his eyes were staring and glassy, his pupils dilated and fixed, the breathing was shallow and quiet, and the pulse moderately strong, but remarkably slow. His whole muscular system was relaxed, and apparently life was

quietly ebbing away. Any attempt to rouse him was without effect. Having set him in a good current of fresh air, I alternately douched him with cold water and applied to his mouth and nostrils carbonate of ammonia, and at the end of an hour he began to bestir himself and to talk incoherently. At the same time his pulse reached 58 per minute and the respiration became deeper. This seeming improvement did not last long, for soon the patient was attacked with violent clonic convulsions which lasted for about two hours. The mouth was open and drawn to the left side, and the muscles of that side generally were mostly affected. The only premonitory sign of the onset of these convulsions was a slowing of the pulse down to about 50, and, being still of opinion that they were syncopal in character, I continued the resuscitating efforts till the convulsions disappeared and the patient had been safely removed to his home. At this stage I tried to get him to swallow a teaspoonful of brandy, but failed. About 6 A.M., when the condition of the patient appeared to be more hopeful, I left him in charge of my assistant, Dr. James Lang. So far, however, from the effects of the poison disappearing, they returned with alarming severity and with a somewhat different character, for suddenly the patient was affected with tetanic contractions of the muscles, which were so violent that Dr. Lang had to get the assistance of several men to prevent him from doing himself bodily injury. At 10 A.M. I visited the patient and found that, with very short intervals, the extensor muscles of the trunk and the flexors of the limbs—chiefly the arms—were contracted and rigid, the eyes open, the pupils dilated, the bloodvessels of the forehead prominent, the skin bedewed with perspiration, and the pulse rising and falling with the intensity of the spasms. Nothing gave any relief except chloroform, and as soon as its effects had passed off the spasms returned. The patient was once more removed to the open air and oxygen by inhalation administered, but not with any appreciable amount of success. Free action of the bowels by a drop of croton oil was next tried, but with no better result, for the spasms even increased in severity for the next forty-eight hours. At the end of this period it was observed that the intervals of rest were of longer duration, and that during these intervals the patient was in a state of coma. The tetanic contractions gradually became less violent until, on the fourteenth day after the accident, only faint tremors of the flexor muscles were perceptible. Only on rare occasions would the patient allow himself to be fed. Up to this stage the symptoms pointed throughout to asphyxia as the cause, and, according to Dr. Lauder Brunton, the opisthotonic character of the spasms is due to the fact "that, all the muscles being stimulated at once by the action of the venous blood in the motor centres, the stronger overpower the weaker, and the extensor muscles of the back, being more powerful than the flexors, bend the spine backwards."[1] In this connexion it is extremely interesting to note that in every stage of this man's illness there was an entire absence of cyanosis, the pathological significance of which will be explained further on.

In this semi-comatose condition the patient remained for ten days, and we were hopeful that he would speedily recover. But here the drama did not end, for on the fifteenth day after the accident, without any warning, he was attacked with acute mania, and had again to be put under restraint. At this time, you will remember, I was asked to take charge of Dr. Anderson's wards, and for the purpose of obtaining a more careful observation of the case he was admitted to Ward 7 on April 3rd. So violent was he after admission that the services of male attendants had to be procured for twenty-four hours, when he once more relapsed into his former comatose state. For the next eight days he remained *in statu quo*. The following notes were taken:—

"April 13th.—Listlessness disappearing. Patient, on being asked this morning to put out his tongue, complied. Continues to talk incoherently, but the articulation is more distinct. Faint tremors occasionally present.

"17th.—Patient does not look so ghastly or so stupid. He sits up in bed; his eye and body generally very restless, and he seems to take no intelligent notice of his surroundings. When roused and asked if he knows me he appears to be *dreaming* or *trying to think*. I mention my name, and for an instant he brightens up and says, 'Yes, yes,' and then lapses into unconsciousness. Nurse informs me that for the last twenty-four hours his bed has been perfectly dry and clean, his necessities having been anticipated, though the only indication was restlessness.

"24th.—To-day he took a biscuit in his hand and ate it.

"May 22nd.—The lucid intervals are occurring more frequently and they last longer. To-day he repeated the names of the months of the year in one sustained effort.

"June 5th.—Up till this date he was fed by the nurse. He now sits at table and attends to his own wants.

"8th.—While at dinner and during a lucid interval he rose from the table and said he must go home, but when reasoned with and advised to put on his boots he quietly resumed his seat. This interval occupied about three minutes.

"19th.—One lucid interval lasted fully forty minutes, during which patient talked rationally and coherently."

Temperature.—The temperature has all along been normal except on one occasion, when it reached 104° F., and was due to constipation.

Pulse.—Owing to the tremors a careful examination of the pulse could not be made, but about three weeks after admission, when the agitated state of the muscles had partially subsided, sphygmographic tracings were obtained by our resident physician, Dr. Crawford Robertson.

The tracings exhibited the slowness of the heart's action, the small volume of the pulse, and the moderately high arterial tension.

Reflexes.—As might be expected, the reflexes were at times pronounced and exaggerated, while at others they were entirely absent.

Urine.—For the first two or three weeks it was quite impossible to make a careful examination of the urine. At first it was scanty. It contained neither albumin nor sugar, but the quantity of urea varied from nearly eleven grains down to two and a half grains per ounce. At the present time it is quite normal in every way.

We come now to consider the antecedent brain disorder on which this dementia depends, and, as I have already indicated, the chief agent is poisoning by carbon monoxide; but in case I may be accused of squaring my proofs to my conclusions instead of confining my conclusions to my proofs I proceed to examine the analysis of the gas that was inhaled by this patient. It is known as "clear gas" from ammonia works and consists of—

	Per cent.
CO_2	6·55
CO	25·57
H	4·80
CH_4	5·57
O	0·52
N	56·99
	100·00

When examining the flue from which this gas passed out in large volume it appeared to me to possess no particular odour, and this explains why no exertion is made to escape by the person exposed where it would require but slight efforts on his part to do so. It gave no warning of its presence, and, therefore, it destroys life in a most insidious manner. Looking, again, at the analysis of this gas, it is obviously difficult to differentiate between the effects of its various constituents; but if we exempt marsh gas (CH_4), which may be respired to a great extent without apparent injury, and nitrogen, which exhibits no positive poisonous properties, there remain only carbonic acid (CO_2) and carbon monoxide (CO) to be reckoned with. In disposing of carbonic acid we have to bear in mind that even in a diluted state it penetrates into the lungs, is absorbed and circulated with the blood, and thereby interferes with the "internal respiration," and, according to Dr. Lauder Brunton,[2] "the processes of oxidation are interfered with and their functions lessened or destroyed." But 6·55 per cent. of carbonic acid is not a fatal proportion; it requires 10 per cent., and that, too, in still air, to destroy life. Berzelius[3] even recommended a 5 per cent. solution in the treatment of phthisis pulmonalis. To carbon monoxide, then, we must attribute the main danger, and this danger is largely increased by its combination with carbonic acid. The one gas acts as a powerful adjuvant to the other. Bernard,[4] when writing on the poisonous effects of charcoal vapour, clearly proved that so small a volume as ½ per cent. of carbon monoxide is fatal to life when mixed with even less than 5 per

[1] Pharmacology, Therapeutics, and Materia Medica, third edition, 189.

[2] Ibid., p. 584. [3] Traité de Chimie, tome ii., p. 83. [4] Les Substances Toxiques, 1857, p. 135.

cent. of carbonic acid; and Guerard[5] declared that a mixture was fatal when the same quantity of these gases respired alone was perfectly innocuous. Not only so, but the symptoms in this case agree, in the main, with those produced by carbon monoxide and are due to the action of that gas upon the hæmoglobin of the blood, the union of which forms a compound of interesting and characteristic attributes. Now, you will remember that hæmoglobin is known as the oxygen carrier, its most important property being its affinity for that gas; but, while it readily combines with oxygen, it just as readily parts with it to the tissues—indeed, so unstable is the combination that it has been roughly compared to a mere solution of the gas in a fluid. On the other hand, the combination of hæmoglobin with carbon-monoxide is most stable, forming carboxyhæmoglobin, which compound offers such strong resistance to displacement by oxygen that it was at one time considered absolutely incapable of dissolution; and, therefore, we need not be surprised at our lack of success in the treatment of our patient either by artificial respiration or the inhalation of oxygen. As having a distinct pathological bearing on this case let me also remind you that hæmoglobin readily crystallises in elongated prisms, but that it affords a most remarkable exception to the law of diffusion inasmuch as it will not diffuse through membrane *as such* without decomposition. The most reliable test for presence of carboxyhæmoglobin in the blood is that afforded by the spectroscope as expounded by Professor Lehman.[6] In the spectroscope, carboxyhæmoglobin exhibits two absorption bands which are very similar to those of ordinary oxyhæmoglobin, but the results may be differentiated in the following manner. If to a solution of oxyhæmoglobin we add two drops of yellow ammonium sulphide or of Stokes's solution (ferrous ammonium tartrate) the two bands will disappear and in their place will be produced a broad band of reduced hæmoglobin; whereas if we apply the same reagent to a solution of carboxyhæmoglobin both bands will remain, because this compound resists reduction. For the verification of this test I am indebted to my friend, Professor Oliver of Newcastle, who has all along taken a very great interest in the progress of our case.

The literature on the subject and the reports of cases, so far as I have been able to discover, are extremely scanty. Dr. Siegfried Stockes[7] of Lucerne published a case in which a patient, after exposure to carbon monoxide, remained in a seemingly hopeless state for forty-eight hours and only revived when transfusion was resorted to. About three days thereafter a very gradual improvement set in; but extreme prostration and mental weakness ensued, and the patient only fully recovered two months later. Mr. James Hamilton, manager of Coltness Ironworks, at which sulphate of ammonia is manufactured on the same principle, has kindly furnished me with notes of a strikingly similar case which was carefully observed by Dr. John Millar. The patient, a young man aged twenty, was engaged in repairing an exhauster at the ammonia works when he was overcome by the gas and fell unconscious to the bottom of the exhauster. An interval of fifty-two minutes elapsed before he could be rescued. Energetic resuscitating efforts were continued by Dr. Millar for fully one hour, and ether was injected twice before the heart's action was perceptible. The patient was maniacal for three days and quite insensible for eight days. His vision was imperfect for seventeen days; and, indeed, he could not recognise the time of day for many months, during which period he was quite unable in any way to attend to his own necessities. After a lapse of two years his health has now become fairly good, but he still remains facile, with a weakly smile, and cannot be trusted with any responsible work. Altogether the analogy between Dr. Millar's case and the one we are now considering is very interesting and instructive.

Treatment.—During the early stage when collapse is imminent a free current of fresh air, the inhalation of oxygen, together with stimulation by the inhalation of carbonate of ammonia or the injection of ether, are naturally indicated. Bearing in mind, however, that carboxyhæmoglobin owing to its stability simply circulates in the blood without performing the function of respiration, and also that, as yet, no agent has been discovered which will dissolve this compound, it follows that the only rational line of treatment points to venesection and transfusion.

[5] Annales d'Hygiène, 1843, 2. 55.
[6] Method of Practical Hygiene, p. 238.
[7] Correspondenzblatt für Schweizer Aerzte, No. 8, 1888, p. 258.

Deaths due to this noxious vapour are becoming frequent (in a neighbouring works there have been no fewer than six), while even in the mildest cases early and complete recovery is extremely rare. For prevention I would suggest (1) that there should be a free current of air around the flues, and (2) that every attendant should wear a respirator.

I will now recapitulate some of the outstanding features of the case. 1. The accumulative action of this gas. The effects continued to increase for fourteen days after the patient had ceased to breathe the poison. First we had complete relaxation of the muscular system with shallow breathing and slow pulse for an hour, after which we had violent convulsions for three hours, which were again succeeded by rigid tetanic spasms with mania until the fifteenth day. 2. The asphyxial nature of the symptoms with persistent absence of cyanosis. This condition is explained by the fact that the carboxyhæmoglobin does not part with its oxygen, and consequently the bright cherry colour of the blood, circulating but not oxygenating, accounts for the pallor, aided doubtless by contracted arteries. Bernard also explains this as due to carbon monoxide paralysing the blood cells and thus rendering them incapable of taking up oxygen, and hence the bright arterial blood is prevented from becoming venous. 3. The length of time during which the brain retains, and is affected by, the poison after the other organs of the body have seemingly eliminated it. 4. The periodicity of the recurrence of the more prominent symptoms. This was noticed in the behaviour of the muscles from the appearance of the convulsions down to that of the indistinct tremors; in the temporary presence and absence of the reflexes; and especially in his lucid intervals, during which the brain is supplied with pure blood. If I were to ask the patient a question and if one of these waves of consciousness were present he would reply intelligently, but immediately the lucid interval passed off his mind would be quite blank. In the history of the case I pointed out that the first ray of consciousness was observed when he was asked to put out his tongue and he readily complied, but no persuasion could make him repeat the act. The next was when he endeavoured—weakly, indeed—to attend to his own necessities. Then he could hold a biscuit in his hand and eat it. Shortly afterwards he at times would recognise me and could tell where I lived. Then he could repeat the names of the months of the year, and now he recognises that this is not his home. When first observed the lucid intervals were only momentary, and the nurse now informs us that yesterday, June 19th, he talked quite intelligently for nearly forty minutes. Hitherto the improvement in the condition of our patient has been very slow, but when you reflect on the pathological condition of the blood you will readily understand why it should be so, for carboxyhæmoglobin will not diffuse through membrane without decomposition, and as yet no solvent of this compound has been discovered. It follows that its elimination from the system by the ordinary processes of excretion must be remarkably slow. Not only so, but, as malnutrition seems to be the *fons et origo* of insanity generally, I should not be surprised if our patient had yet to be removed to an asylum or home for the treatment of mental diseases. If venesection and transfusion had been resorted to, or, indeed, were they to be resorted to now, the symptoms of dementia in all probability would disappear more rapidly; but in the present state of his health we can only trust to the *vis medicatrix naturæ*.

QUININE AS A PROPHYLACTIC IN AFRICAN FEVERS.

BY GEORGE THIN, M.D. ST. AND.

I HAVE been engaged for some time in collecting evidence which may serve to indicate the best method of using quinine as a prophylactic against malarial fever, and also the amount of reliance which may be placed upon it to prevent attacks in persons who are temporarily exposed to the action of the malarial poison. I am not yet prepared to write fully on the subject, as I hope to do later when the evidence available has become larger; but the presence of an unusual number of Europeans on the West Coast of Africa suggests to me the utility of bringing the matter, without further

delay, prominently before the notice of medical men in practice in malarial countries, and more particularly in Africa. My attention was first awakened to the subject some years ago by my friend Mr. Davis, Inspector-General of the Royal Navy (retired), who told me that nearly forty years ago he was in medical charge of a small body of sailors who were sent on service up one of the rivers on the West Coast. He caused five grains of quinine to be given to every man daily, and although they were exposed to malarial miasmata of the worst kind for about three weeks every man escaped fever except an officer who declined to take quinine. Valuable evidence of the same kind will be found in the Statistical Report of the Health of the Royal Navy for the year 1856. It is there stated that the *Bloodhound* steamed in March about 200 miles up the Benin river. While in the river and for fourteen days after leaving it from three to six grains of quinine were given to each of the ship's company as a preventive of fever, and although they were exposed to the emanations from the swamps for twenty-seven days only six suffered slightly from fever. Some time afterwards they were again exposed to miasmata in the Bonny, New Calabar, and Sherbro rivers, the last one of the most dangerous rivers for Europeans in the whole station, but quinine in solution was invariably used as a prophylactic and with good effect, as only one case occurred after the vessel had been for a week on the Sherbro, the patient being the only person who did not take the quinine regularly. Boats from the *Firefly*, manned with white men, were sent up the river Pongas. The men took quinine wine night and morning whilst absent and continued its use for ten days after they returned, and all escaped fever. An officer who slept two nights on shore, and who declined to take quinine as a preventive, was attacked about fourteen days after returning on board. The *Merlin* went up the rivers Bonny, New Calabar, and Brass. The men every morning took half a wineglassful of quinine wine, and this was given to the whole crew for fourteen days after leaving the rivers, in which they remained altogether about twelve days. No sickness of any kind followed the several expeditions into these notoriously unhealthy localities. The report does not state the strength of the quinine wine given, which may account for the following evidence of another kind. The *Scourge*, which was cruising on the coast on one occasion, entered Old Calabar river, and during her stay there quinine wine was issued to every person on board and no fever followed, but when at anchor off Lagos during part of the time six persons were employed inside the bar assisting to repair the *Minx*, and although, with one exception, they took quinine daily, yet after they returned on board each had an attack of fever. Four of these cases were mild and two severe. The subject of one of the latter was the person who neglected to take the quinine wine. A friend of my own, who is at present living on the Sierra Leone coast, and who had suffered from malarial fever during a previous residence, returned there last summer. From the time of his arrival he had taken five grains of quinine daily, and when I last heard from him, several months after his arrival, he had remained free from fever. A young engineer, who is at present working in a very malarial district on the East Coast of Africa, consulted me before he left England as to the best means of escaping fever while in the fever zone. I recommended him amongst other things to take five grains of quinine daily. After reaching the malarial district he took this dose regularly and has remained in excellent health for several months without a trace of fever, while the two companions who were associated with him have been so repeatedly prostrated with fever as to be most of the time incapacitated for work.

I could quote a similar and striking experience in India. We now know, of course, how quinine acts as a prophylactic against fever, and why it must be a prophylactic. The young naked spore of the malarial parasite is extremely susceptible to the destructive action of a minute proportion of quinine in the blood, and the question to be solved, and which can only be solved by an accumulation of facts, is, What amount of quinine can the average man take daily for a certain period without prejudice to his health? For it is reasonable to suppose that the greater the proportion of quinine in the blood the less chance of the malarial spore being able to live in it. The administration of even small doses of quinine over a certain period acts injuriously on the red corpuscles, but clinical experience shows that in most cases the injurious effect of quinine, if not continued over too long a time, may be practically ignored. It seems quite certain that most people can take five grains of quinine daily over a very considerable period without any appreciably injurious effect, and if it should turn out that a dose of five grains is reliable as a prophylactic the physician would not hesitate to recommend it to all persons who have to reside for a time in malaria-stricken districts. For those whose stay in such districts is brief, and where the malarial parasite is virulent, this dose might be increased. I have been in the habit of recommending the prophylactic dose to be begun two days before the person is exposed to the action of malaria and to be continued for ten days after he leaves the district. I prefer the solution of the powder to other forms.

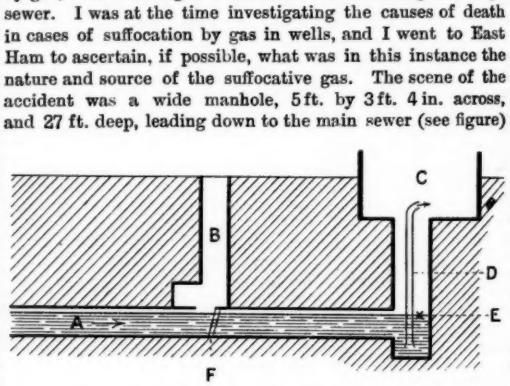
As the future development of our intercourse with the malarial districts of Africa is sure to make greater and greater demands on our population, it becomes a matter of almost national importance to lessen the amount of the blood-tax which our race has to pay. There are, of course, in Africa, as in the other continents, several varieties of the parasite of malaria, but the only one with which I have yet had an opportunity of becoming familiar is one found in the blood and in the tissues of patients suffering from the severe fevers that occur on the Sierra Leone coast. The extensive changes that it produces in the tissues and the heavy loading of the white corpuscles with pigment show it to be a parasite which acts with unusual activity and virulence (which, of course, only bears out what is known from the clinical symptoms), and this explains why such enormous doses of quinine are necessary to kill it. All the more important, therefore, is it to use quinine as a prophylactic, and to prevent a parasite which acts with such swiftness and multiplies with such rapidity from settling in the blood. The long-lasting effects produced by it when it once fairly gains a footing are so serious that the comparatively slight deleterious action of quinine on the blood ought not to stand in the way of its regular and free use as a prophylactic. It is to be hoped that experiences of the dose which is found to be efficient for this purpose will be freely recorded by medical men in Africa and elsewhere who have ample opportunities for observation.

Queen Anne-street, W.

POISONING BY GAS IN SEWERS.

BY JOHN SCOTT HALDANE, M.D. EDIN.,
LECTURER IN PHYSIOLOGY, UNIVERSITY OF OXFORD, AND GROCERS' COMPANY RESEARCH SCHOLAR.

ON July 1st, 1895, five men were killed in an accident at East Ham Sewage Works. They were overcome, apparently by gas, while working in a manhole or well leading to a large sewer. I was at the time investigating the causes of death in cases of suffocation by gas in wells, and I went to East Ham to ascertain, if possible, what was in this instance the nature and source of the suffocative gas. The scene of the accident was a wide manhole, 5 ft. by 3 ft. 4 in. across, and 27 ft. deep, leading down to the main sewer (see figure)



A, Main sewer; B, Manhole; C, Engine house; D, Intake of pumps; E, Pump-well; F, Screen.

near where the sewage enters the pump well. The main sewer is 680 ft. long, 4½ ft. high, and 3 ft. wide. It is egg-shaped, comparatively new, and provided with ventilating shafts, the first being distant 148 ft. from the manhole. This sewer is usually more or less full of sewage, as it is below the level of the branch sewers draining the district, which are always running free. The machinery

provided is sufficiently powerful to allow of the sewage being continuously pumped up as rapidly as it flows into the main sewer. The manhole itself is solidly and cleanly built, and is always kept open at the top. It affords direct access to a double screen (shown in figure) placed in the sewer for the purpose of arresting solid objects which might clog the pumps. The pump-well is closed above, but it is ventilated through gratings situated behind the engine-house.

The circumstances of the accident were, briefly, as follows. One of the men had gone down the ladder as usual to clear the accumulation from the front of the screen. Before reaching the bottom he said he felt ill and began to return; but when almost at the surface he was overpowered, and fell off the ladder into the sewage, which, as shown in the figure, seems to have been about 4 ft. deep at the time. (It was a rule that the men were not to go down unless the top of the sewer was free, so as to allow of the ventilation being in operation. The ventilating shafts are connected with the crown of the sewer.) A companion who was assisting at the surface immediately summoned help, and with rash but splendid courage three men descended, one after the other, to the rescue. They were, however, all overpowered and fell off the ladder to the bottom. The engineer in charge of the pumping-station was then called from his office, and seeing one of the men lying on the top of the screen at once descended to his assistance, but fell off the ladder and was drowned. A bucketful of live coals was now brought from the engine-house and lowered into the manhole. After it had been withdrawn a man went down with a rope round his body, but had to be drawn up again. Another man, also with a rope round him, next went down, and was able to keep his footing. He succeeded in getting a rope round one of the men who, having fallen on the top of the screens, had not been drowned and was still breathing, though quite insensible. The poisonous gas seemed now to have lessened in amount, and the bodies of the other men were soon recovered from the water. The rescued man was in a comatose condition when brought up and never recovered consciousness. He died in the West Ham Hospital almost eighteen hours later. Mr. Blake, resident medical officer to the hospital, kindly furnished me with information as to his symptoms. When he was brought in his respiration was slow and stertorous. There was no corneal reflex. Distinct cyanosis was absent. There were constantly recurring clonic spasms of the arms and legs; these spasms were repeated about every half minute, and rendered it very difficult to carry out artificial respiration, which was employed for the first two hours. The eyes were frequently directed towards one side. The temperature rose to 102° F. some time after his admission. No symptoms of bronchitis were noticed. There was a discharge from the eyes indicative of conjunctivitis. Urine was passed involuntarily, and none could be collected. Inhalation of oxygen was tried, but without effect. Three hours before death the spasms ceased, and symptoms of œdema of the lungs appeared, and gradually increased. At a post-mortem examination conducted by Mr. Blake, Mr. J. H. Horton, and myself three days later, no fresh naked-eye changes of any kind were discovered in the organs, with the exception of the lungs, which were more or less œdematous. The blood was normal in appearance, and there were no hæmorrhages or other gross changes in the brain or spinal cord, which were both examined. Unfortunately, decomposition was already far advanced. Dr. Washbourn and Mr. Horton made a microscopic examination of parts of nearly all the organs. They found patches of broncho-pneumonia in the lungs, but no distinctly recognisable fresh changes elsewhere. The brain, spinal cord, liver, kidneys, and heart were all examined.[1] The body of one of the other men was also examined by Dr. Smith. The appearances were such as to suggest that death was due to drowning. I examined a specimen of the blood, and ascertained that no carbonic oxide was present. There were no signs of any abnormality in the hæmoglobin. Four men had thus been drowned while stupefied by the gas, while the fifth had apparently been killed by the gas alone.

The cause of the accident remained very obscure. The manhole had been regularly used twice daily for three years and a half as a means of access to the screen, and no one seems to have suspected the possible presence of poisonous gas, yet there could be no doubt that gas of some kind had overpowered the men. Three days after the accident I obtained a specimen of the air from the bottom of the shaft, and a large sample of fluid taken from the surface of the sewage. At the time of my visit a candle burned perfectly well at the bottom of the shaft; filter paper freshly moistened with lead acetate solution was not sensibly blackened within three minutes, and a mouse which I lowered into the well before descending myself showed no signs of uneasiness. The air in the manhole smelt very strongly of decomposing sewage, but I had frequently been in sewers in which there was an equally unpleasant smell. I was unable to detect in myself any unusual symptoms. A careful analysis of the sample of air gave the following result: oxygen, 20·84 per cent.; carbonic acid, 0·10 per cent.; and nitrogen and argon, 79·06 per cent. As with the same gas-burette fresh air gave 20·91 per cent. of oxygen it follows that the oxygen in the sample was diminished by 0·07 per cent., and the carbonic acid increased by the same amount. Thus, according to the analysis, the air differed very little from normal air, and was only slightly less pure than that of average well-ventilated sewers such as those investigated by the late Professor Carnelly and myself.[2] The slight vitiation detected by analysis would have required to be more than a hundred times as great to produce any serious action on a man. The result of the examination of the air thus threw no light on the cause of the accident, and was, at any rate, unfavourable to the theory that there had been any dangerous deficiency of oxygen or excess of carbonic acid in the air. The live coals lowered into the manhole at the time of the occurrence burned perfectly brightly, and this fact pointed strongly in the same direction. Flames are extinguished when the proportion of oxygen in the air is diminished by 3 or 4 per cent., though this diminution causes no inconvenience to a man. It is true that if pure carbonic acid be added to air a flame will still burn in it until the atmosphere is such as to be capable of causing extreme respiratory distress and other serious symptoms in a man breathing it; but, as explained more fully below, such an admixture of pure carbonic acid would not occur in a sewer.

The examination of the sewage, which was undertaken within a few hours, at once showed what had almost certainly happened. Having filled a large bottle about a quarter full of the sewage and shaken it up I lowered a mouse into the upper part of the bottle. The effect on the mouse of the vitiated air was almost instantaneous. It first became uneasy and then showed signs of becoming stupefied. The respiration at the same time became very much less frequent, diminishing from about 140 to 20 a minute. After a minute or two the mouse remained lying on its side and could not be roused. After twenty minutes it was still alive and seemed no worse. When taken out it gradually recovered completely. These symptoms, and particularly the marked slowing of the respirations, pointed to a poisonous gas with an irritative action on the air-passages. The only gas of the kind which could be present was sulphuretted hydrogen, and I found that moist lead paper, when introduced into the air of the bottle, became markedly discoloured in a few seconds. The smell of the sulphuretted hydrogen could also be more or less distinctly perceived, along with that of other putrefaction products. There could thus be no doubt as to its presence. Proof was still required, however, that the sulphuretted hydrogen was actually the cause of the symptoms. On adding a little caustic soda to a portion of the sewage and shaking the bottle up I found that the air had completely lost its poisonous properties and at the same time its action on lead paper. The sulphuretted hydrogen had been absorbed. The smell of the sewage, though somewhat altered in character, remained as offensive as before. On now adding a slight excess of sulphuric acid and shaking the air again produced the above described effects on a mouse and blackened lead paper. Lead acetate had the same effect as caustic soda in removing the poisonous property of the air along with the sulphuretted hydrogen. It was thus evident that the sulphuretted hydrogen and nothing else had rendered the air poisonous. A light introduced into the bottle burned perfectly well in the poisonous air, so that the oxygen percentage was certainly not materially reduced. In order to render the air poisonous it was only necessary to let it stand in the bottle above the sewage for a short time, although shaking hastened the process.

[1] At the inquest on the body of this man the jury returned a verdict censuring the East Ham authorities for not taking greater precautions in connexion with the sewer. The precautions actually taken, however, seem to have been unusually great, so far as I could judge.

[2] Proceedings of the Royal Society, vol. xlii., 1887, p. 501.

These observations rendered it exceedingly probable that the men had been overpowered by sulphuretted hydrogen given off by the sewage to the air. There was no perceptible wind at the time, and in the warm and dry weather which prevailed, not only would the sewage be concentrated, but the temperature in the manhole and sewer would be below that of the outside air, so that there would be little or no natural ventilation of the manhole by convection currents. When the sewer was nearly full any slight current of air which passed into the manhole along the crown of the sewer would in all probability be contaminated by sulphuretted hydrogen. Hence conditions would exist which might easily render the air of the well poisonous, provided a sufficient amount of free sulphuretted hydrogen were present in the sewage. On inquiry of the police authorities I was informed that silver coins and a silver watch chain taken from the bodies were blackened, which showed that sulphuretted hydrogen was certainly present in the sewage or in the air at the time of the accident.

At a temperature of 15°C., which would be about that of the sewer, one volume of water will dissolve 3·2 volumes of sulphuretted hydrogen. The latter gas is thus about 170 times as soluble in water as air is, or 3·2 times as soluble as carbonic acid. A saturated solution of sulphuretted hydrogen would accordingly (since 0·07 per cent. of the gas in air is a poisonous proportion) be capable of rendering poisonous 4500 times its volume of air. Supposing that the sewage were only 0·2 per cent. saturated with the gas, and that no more was being formed, it would still be capable of rendering poisonous about six times its volume of air. Wherever sulphuretted hydrogen is formed in sewage marsh gas is probably also formed in far greater amount. Were the two gases given off to the air together the mixture would rise and so tend to leave the sewer. As, however, sulphuretted hydrogen is about 100 times as soluble in water as marsh gas the former may be mostly retained in solution and given off by itself later, when it will not tend to rise, as it is slightly heavier than air. Any cause tending to stir up the sewage would greatly favour the giving off of the gas from its solution in water. Now, not only was the sewage in slow motion all along the main East Ham sewer, but just at the bottom of the well where the accident occurred there was considerable motion, arising from the passage of the sewage through and over the partially blocked screen towards the pumps. On looking down the well one could see a constant eddying at the bottom from this cause. It is thus not difficult to understand how sulphuretted hydrogen might have been given off pretty rapidly from the sewage and in sufficient quantities to cause danger if there was only a very slight current of air in the well.

The sewage system of East Ham is a comparatively small one. It might at first sight seem surprising that, in the short time which must be required for sewage to flow from any part of the town to the pumping station, putrefaction could have become sufficiently advanced to cause danger in the sewer. It must be remembered, however, that what enters the sewers is not the comparatively fresh material which is poured down sinks, &c., but a mixture of this with the foul-smelling contents of house traps, and particularly of the grease boxes into which kitchen water passes. In summer the contents of kitchen grease boxes seem frequently to give off quite enough sulphuretted hydrogen to render the air in contact with them poisonous. But for the state of house traps and house drains there would probably be little danger or smell in the air of a new and short set of sewers such as those of East Ham. No amount of engineering skill in the construction and ventilation of sewers can, however, entirely avail against the putrescent material and overpowering odours which commonly issue into a sewer from house drains.

The action of sulphuretted hydrogen on men and animals has recently been carefully reinvestigated by Lehmann.[3] He concludes that about 0·07 per cent. is just sufficient to cause death after an exposure of about an hour or more in the case of various animals, and doubtless also of man. In one of his experiments on man alarming symptoms were produced within a few minutes by an atmosphere containing about 0·05 per cent. The frequently quoted statement on Parent Duchatelet's authority that a man can breathe 3 per cent. of sulphuretted hydrogen for a short time without injury is certainly quite erroneous; 3 per cent. would cause almost instantaneous death. Lehmann found that 0·2 per cent. was sufficient to kill dogs and cats within one and a half minutes. Lehmann's experiments on man brought out clearly and for the first time the symptoms which are produced in men and animals when the proportion of sulphuretted hydrogen is becoming dangerous. The first symptoms are those of irritation of the eyes and respiratory mucous membrane. In consequence of the irritative action on the air passages there is "catching of the breath" and diminished frequency of the respirations. With increasing proportions of the gas, or longer exposure, these symptoms are accompanied by giddiness, loss of consciousness, &c. I found that with about 0·1 per cent. a mouse fell over in an apparently comatose condition, and with marked slowing of the respiration within a few seconds. Death did not, however, occur until after forty-five minutes. Judging by the symptoms of the mouse, and the action of the gas on lead paper, there was in the experiment mentioned above somewhat less than 0·1 per cent. of sulphuretted hydrogen in the air in contact with the sewage in the bottle. On asking the man who was first able to keep down what he could remember of the symptoms produced on himself in the manhole, he told me that the gas affected him at once, before he got to the bottom. It "caught him in the throat" and made him stupid, so that he would have fallen had he not had a rope round him. He was afterwards hoarse, and suffered from headache and a constant feeling of nausea, accompanied by eructations. When I saw him the day after the accident he still seemed dazed, and was suffering much from nausea and retching. He said he felt as if the gas were still inside him. His conjunctivæ were congested and his eyes "felt queer," though he did not notice any smarting of the eyes while he was in the manhole. On the whole his symptoms were clearly those of poisoning by sulphuretted hydrogen. The after-symptoms presented by the man who was rescued appear to have been of the type described by Böhm[4] as produced both by simple deprivation of oxygen and by the action of certain poisons affecting the central nervous system. The conjunctivitis and broncho-pneumonia were very probably due to the local action of the sulphuretted hydrogen. The sewage was neutral in reaction, so that the evolution of sulphuretted hydrogen was not due to acid discharged into the sewer; and there are no manufactories of any kind in the district from which the sewage came. Although the smell in the manhole was very offensive the material in the sewage did not seem to be in a very advanced state of decomposition. The fragments of kitchen refuse, vegetables, lumps of meat, &c., floating in it looked comparatively fresh.

It would seem probable that the sulphuretted hydrogen was formed chiefly or entirely from albuminous material, from which it is very easily split off by the action of bacteria. Part may also have been formed by reduction of the sulphates derived from urine; but with this latter mode of formation the rate of production seems to be exceedingly slow. Albumin contains about 1 or 1½ per cent. of sulphur by weight, and the sewer air could not become dangerous unless more than 0·15 per cent. of sulphuretted hydrogen by volume (corresponding to 0·05 per cent. saturation) were present in the sewage. Hence more than 0·02 per cent. of albumin must have been present. If the ordinary quantity of about thirty gallons of water per day per head of population had been passing into the sewers, such a percentage of albumin could not possibly have been derived from excreta. At the time of the accident, however, the water-supply was diminished on account of the drought, and it was estimated that only about eighteen gallons per day were passing into the sewers. Even with this diminished supply it is probable that much the greater part of the albumin was derived from kitchen refuse. The appearance of the sewage certainly seemed to indicate that a very great amount of unused food material passed into the sewers. Had the water-supply of East Ham been normal the accident might probably not have occurred, as the sulphuretted hydrogen would have been more dilute, and from the symptoms of the men and the mouse it seemed probable that a slight dilution of the gas would be sufficient to render it harmless. The sewage ordinarily met with in well-built sewers does not contain sulphuretted hydrogen, nor does ordinary sewer air blacken lead paper. How, then, was sulphuretted hydrogen present in this case? It seemed probable that so long as sewage is sufficiently aerated there is no evolution of sulphuretted hydrogen, the bacteria simply oxidising the sulphur

[3] Archiv für Hygiene, vol. xiv., 1892, p. 135.

[4] Archiv für Experimentale Pathologie, vol. viii., 1878, p. 68.

of the albumin to sulphates, and the carbon and hydrogen to carbonic acid and water, in the same manner as do the tissues themselves in the case of a living animal. In the sewer in question, however, the sewage was not only in a concentrated state at the time, but there was a deep layer of partially stagnating liquid, which was already thoroughly infected by bacteria from house traps, &c., as explained above. In this layer the free oxygen would be rapidly used up, and there would thus be the necessary conditions for the formation of sulphuretted hydrogen, together with marsh-gas, hydrogen, indol, skatol, and various other products of imperfect oxidation or reduction. With a view to testing this hypothesis I had made one or two preliminary experiments with sewage, when I found that the matter had already been investigated, though with a quite different object, by Hoppe Seyler.[5] His experiments with albuminous solutions proved beyond doubt that so long as there is free oxygen in a decomposing solution none of the ordinary evil-smelling products of putrefaction (such as sulphuretted hydrogen, &c.) are formed. The only gaseous or volatile decomposition products which he could discover were carbonic acid, ammonia, and water. The rate of decomposition and development of bacteria was far greater when abundance of free oxygen was supplied. Although in the case of the East Ham accident the poisonous constituent in the sewer-air was sulphuretted hydrogen, yet it does not follow that cases of acute gas poisoning in sewers are always due to the same cause. After examining the evidence in several recent cases, however, I am inclined to think that they usually are. On May 4th, 1894, two men were knocked down by gas and drowned in a sewer under the control of the Lambeth Vestry. The case was very thoroughly investigated at the inquest, and, through the kindness of the engineer to the London County Council, I have been placed in possession of the whole of the evidence brought forward. It appeared that three men who had been sent in to measure a sewer were suddenly overcome by gas and fell into the water. Two were drowned, but the third regained consciousness, and succeeded with great difficulty in escaping. The sewer was an old and filthy one, containing much deposit; and it appeared that a quantity of warm water containing about 1 per cent. of sulphuric acid was daily discharged into it from an oil refinery. The man who escaped did not notice the smell of rotten eggs, but observed steam coming down the sewer, and then suddenly experienced a choking sensation and lost consciousness. His silver watch and chain were blackened. A man who afterwards attempted to rescue the other men noticed a smell like that of rotten eggs. He also experienced the choking sensation, became giddy, and had to return. Another man, who went in later, said that the gas made his throat feel dry and his eyes smart. He described the smell as oily. A sample of sewage taken at the same place next day was analysed by Mr. Muter, who found in it 0·13 per cent. of free sulphuric acid and 10 per cent. by volume of sulphuretted hydrogen. Dr. Stevenson, who gave evidence at the inquest, expressed the opinion that the accident was due to dilute sulphuric acid coming in contact with sulphides present in the sewage and thus liberating sulphuretted hydrogen. An accident in the Fleet-lane sewer in 1861 was attributed by Letheby to a similar cause,[6] although the presence of acid was not proved.

As regards the failure of some of the men to recognise the specific smell of sulphuretted hydrogen, it must be remembered that when it is present in relatively large quantities the smell is not nearly so characteristic. The sense of smell for sulphuretted hydrogen seems indeed to become paralysed, just as occurs in the case of skatol[7] and other very strongly smelling substances. I have myself met with gas (coming from a heated coal-heap) which at once blackened lead paper, but in which I was quite unable to smell the sulphuretted hydrogen. The smell was quite perceptible, however, when I opened in the fresh air a bottle containing a sample of the same gas.

Another accident, into which a thorough investigation was made by Professor Letts,[8] occurred in a sewer at Belfast on June 29th, 1889, and resulted in the death of several men. In this case also there was much stagnating sewage, and the men were engaged in stirring up the deposit so as to cause it to be carried off by the current. Two or three of them seem to have been somewhat suddenly overcome by gas, which one of them described as having "caught his breath." The lamp was dropped and a panic ensued in the darkness, several of the men falling into the sewage. Professor Letts, who afterwards examined the air of the sewer, found in it from 0·2 to 0·1 per cent. of carbonic acid when the ventilators were open, as at the time of the accident. He also observed that lead paper and silver coins were slightly blackened. As a result of his observations he was inclined to believe that a sudden outburst of gas from a disused pipe might have caused the accident, and that the noxious constituent of this gas was probably carbonic acid. The symptoms of the man, however, when interpreted in the light of our present more exact knowledge of the action of both carbonic acid and sulphuretted hydrogen, seem rather to point to the latter gas. This might probably have been given off from the sewage which the men were engaged in stirring up. It would have required more than 10 per cent. of carbonic acid to produce symptoms at all like those described, and it is very difficult to see where so much carbonic acid could have come from. Two of the men appear to have died from pneumonia brought on by the accident. This pneumonia was attributed to sewage getting into the lungs, but might also have been caused by sulphuretted hydrogen, which has been shown by Lehmann to produce inflammatory changes in the lungs of animals.

From the observations made on the subject in Paris and elsewhere it is well known that sulphuretted hydrogen in poisonous proportions may easily be given off from the very concentrated sewage contained in cesspools. It is often assumed, however, that the same danger cannot arise from the comparatively dilute liquid contained in ordinary sewers unless acid has been allowed to get into them and to come into contact with deposits containing sulphides, as in the case of the Lambeth accident. The East Ham case is important as showing that under favourable conditions in summer the presence of acids or of sewage as concentrated as that of a cesspool is not essential. Besides sulphuretted hydrogen, almost the only gas likely to be present in poisonous proportions in sewer air is the carbonic oxide of coal gas.[9] It is well known that coal gas from leaks in the mains very frequently penetrates into sewers, and occasionally causes explosions. It can usually be recognised by its smell, though this may be absent if the gas has passed through fresh earth, or may be disguised by the smell of sewage. If more than about 5 or 6 per cent. be present, the air of the sewer will be explosive; and as sewer-men must always be provided with lights the poisonous action of more than 5 per cent. need hardly be considered. Now, as coal gas itself contains only about 5 per cent. of carbonic oxide, air containing 5 per cent. of coal gas will only contain about 0·25 per cent. of carbonic oxide. The experiments which I recently described in the *Journal of Physiology*[10] show that 0·25 per cent. of carbonic oxide would be at any rate sufficient to render a man absolutely helpless, so that if in a sewer he would probably be drowned. It would, however, require at least half an hour's exposure to cause any danger. Even with as little as 0·06 per cent. of carbonic oxide, or 1·2 per cent. of coal gas, a condition would be produced, after an hour or two, in which any extra exertions, such as that of climbing up a manhole, might give rise to temporary loss of consciousness or giddiness and thus easily cause a fatal accident. There is, therefore, no doubt that coal gas may be a source of serious danger in sewers, quite apart from its explosive properties, and probably some cases of poisoning have been due to it, though so far as I know no such case has been recorded. An observation of the colour of the blood when diluted to $\frac{1}{10}$th with water, and compared in a test-tube with the colour of a similarly diluted solution of normal blood, would always decide the question.[11] The possibility of suffocation from simple deficiency of oxygen in the air of a sewer must also be taken into account. The danger can scarcely ever arise except in the case of men descending a manhole previously to lighting their lamps. A lamp or candle is extinguished when the oxygen percentage falls to from 17·5 to 17·0, while such a small diminution will not sensibly affect a man. With the comparatively free ventilation existing in modern sewers

[5] Zeitschrift für Physiologische Chemie, vol. viii., 1884, p. 214.
[6] THE LANCET, Feb. 23rd 1861.
[7] Cf. Dunstan: Proceedings of the Royal Society, vol. xlvi., 1889, p. 21.
[8] Report to the Town Improvement Committee, Belfast, 1889.
[9] Besides coal gas, I have in one case met with traces of chlorine in a sewer. The chlorine was derived from waste liquor discharged from bleaching works.
[10] Vol. xviii., 1895, p. 438.
[11] Loc. cit., p. 430.

there does not seem to be much actual risk of suffocation from want of oxygen. Even in the Bristol sewers, which have no street ventilators, I did not find more than 0·20 per cent. of carbonic acid, which would correspond to 20·7 per cent. of oxygen.[12] Whenever carbonic acid is present to any considerable extent in a sewer the oxygen percentage will be reduced to an equal or greater extent. The following are analyses of the residual atmospheres which I obtained after agitating decomposing sewage with its own volume of air for several hours in a closed bottle.[13]

—	No. 1.	No. 2.	No. 3.
Oxygen	12·41	9·41	11·90
Carbonic acid	5·99	7·52	7·62
Nitrogen	81·60	83·07	80·48

Such atmospheres will resemble in their action air highly vitiated by respiration. The first effect perceived as vitiation proceeds will be panting, due to the carbonic acid; but the ultimate danger to life from the immediate effects of the gas will be due chiefly to deficiency of oxygen. There is no evidence that the sewage contained in sewers ever gives off in dangerous amounts any other gaseous or volatile substance than sulphuretted hydrogen (and carbonic acid). Although the sense of smell leaves no doubt as to the existence in sewer air of traces of various volatile matters, yet none of these appear to be present in poisonous proportions. As regards the probability of infection from sewer air, the bacteriological analyses of the late Professor Carnelley and myself[14] showed directly how very small such a probability is; and the further experiments of Mr. J. P. Laws[15] have afforded additional, and still more convincing, evidence in the same direction.

I may finally refer briefly to some practical conclusions with regard to the safety of workmen in sewers. To prevent risk of poisoning by sulphuretted hydrogen, as well as to prevent smell, the main condition, besides sufficient ventilation, is to ensure a supply of free oxygen to the sewage. This can only be attained by keeping the sewage in motion, and in a not too deep layer. There will always, however, be bad smells in sewers as long as material is allowed to putrefy in the traps and drains of houses. The stirring up, by whatever means, of stagnating and putrefying sewage is specially apt to render the air of a sewer poisonous. The presence of dangerous proportions of sulphuretted hydrogen in sewer air may be recognised by its irritating action on the respiratory passages and eyes and by the discolouration of lead paper. Catching of the breath and smarting of the eyes are signs of imminent danger. The sense of smell is not a safe guide. When very marked discolouration of lead paper is produced within half a minute it is not safe to remain in a sewer unless a special respirator for absorbing sulphuretted hydrogen be used; even with a respirator 0·05 per cent. would soon cause intense conjunctivitis and photophobia. In cases of accidents from suffocative gases in man-holes, wells, &c., a rescuer should never on any account go down without a rope round his own body. The best way of temporarily ventilating such places is to lower into them hot coals or other burning material. When there is any suspicion of the presence of coal gas in a sewer safety-lamps only should be employed; and it seems desirable that foremen sewermen should know how to test both for sulphuretted hydrogen with lead paper, and for inflammable gas by observing the cap on a flame. When a distinct cap is present there is danger of poisoning, as well as of an explosion from any naked light in the neighbourhood. If there is no cap not more than about 2 per cent. of coal gas or 0·1 per cent. of carbonic oxide is likely to be present.[16] The gas will probably be strongest at the crown of the sewer, so that in testing for gas the safety lamp should be held high. If the lamp fires and is consequently extinguished, the man should hold his head as low as possible and make his escape at once, as there is great danger of poisoning. By letting down a candle or lamp and observing whether it burns it is always possible to ascertain whether the air in a sewer is dangerous from deficiency of oxygen. If the light burns there is not the slightest risk from this cause. The test with a light is, however, absolutely useless for detecting poisonous proportions of sulphuretted hydrogen, and a man in a sewer who trusted simply to this test might easily be led to his death.

Oxford.

[12] Transactions of the Sanitary Institute, 1887.

[13] As free oxygen was present there was no formation of sulphuretted hydrogen &c.

[14] Proceedings of the Royal Society, vol. xlii., p. 501 (Dundee and London Sewers), and Transactions of the Sanitary Institute, 1887 (Bristol Sewers).

[15] Reports to the Main Drainage Committee, London County Council, 1893 and 1894.

[16] With a Clowes hydrogen lamp as little as 0·5 per cent. of coal gas can easily be detected; so that not even symptoms of slight poisoning could be pro uced in air showing no cap with this lamp.

A CASE OF

TRANSPERITONEAL LIGATURE OF THE COMMON ILIAC ARTERY FOR DIFFUSE TRAUMATIC ANEURYSM OF THE EXTERNAL ILIAC AND COMMON FEMORAL ARTERIES; RECOVERY.

BY BRIGADE-SURGEON-LIEUTENANT-COLONEL W. F. STEVENSON,

PROFESSOR OF MILITARY SURGERY, ARMY MEDICAL SCHOOL, NETLEY,

AND

SURGEON-MAJOR H. J. MICHAEL, A.M.S.

ON Nov. 17th, 1895, I was asked to go to Dover to see in consultation, and, if necessary, to operate on, a case of aneurysm of the external iliac and common femoral arteries. The patient was a sergeant in the artillery stationed at Dover Castle under the charge of Surgeon-Major Michael, to whom I am indebted for the notes of the case as well as for its skilful after-treatment. On examining the patient an enormous tumour, having a marked expansile pulsation at all points, was found extending in one direction from two inches below the beginning of Hunter's canal to fully three inches above Poupart's ligament, and in the other from the symphysis pubis to the anterior superior spine of the ilium and the great trochanter, obliterating all signs of Poupart's ligament and of the fold of the groin on the left side. The most prominent point of the tumour was situated at about two inches below the centre of Poupart's ligament, and the increased antero-posterior thickness of the thigh, due to its presence over that of the sound limb at the similar spot, was about four inches. The walls of the tumour were extremely tense, and the pulsation was expansile and very forcible. The condition of the leg below was satisfactory as regards its temperature and circulation, and it was not enlarged or œdematous. The diagnosis admitted of no doubt. The case was evidently one of aneurysm of the external iliac and common femoral arteries, which had become diffused into the tissues of the thigh and abdomen. The previous history of the case was as follows. The patient, a man aged thirty-five years, having no history of syphilis, slipped when walking down an asphalt slope and fell with his left leg under him. He felt a sharp pain in the left groin at the time, but remained at his duty for a week before going to hospital. On Oct. 19th, when first seen by Surgeon-Major Michael, the left leg was swollen and œdematous, and the superficial veins were distended; there was a large swelling in the left groin, reaching from one inch above Poupart's ligament to six inches below it, and laterally occupying almost all the space between the pubes and the superior iliac spine. The tumour had a forcible expansile pulsation, and a loud bruit was audible over it. No pulsation could be felt in the femoral artery below it. The case was treated at this time by absolute rest in bed—the man had been walking about up to Oct. 19th—elevation of the limb, and bandaging from the foot to the middle of the thigh. The question of tying the external or the common iliac artery was discussed, but it was decided to delay for a few days before doing so in order that the swelling and œdema of the limb might decrease, thus placing the man in a better condition as regarded the establishment of the collateral circulation when the operation came to be performed. On the 27th the swelling and œdema of the leg and the engorgement of the superficial veins

were very much less, though the limb was still larger than its fellow; the aneurysm remained unchanged. By the 29th the tumour was larger and very painful. A consultation was held, and it was determined to tie the common iliac artery on the next day. On the 30th, however, it was found that the contents of the tumour had become solid and that the pulsation had almost ceased. The pulsation continued to lessen, and on Nov. 4th none was to be felt in any part of the tumour, the whole of which was solid and firm. A faint bruit was still to be heard over a spot on the inner side. The leg was much reduced in size, and its temperature was fairly good. Apparently spontaneous cure was taking place, and the collateral circulation was being established. By the 7th the limb was of the same size as the other, and the case appeared to be progressing satisfactorily, there being no pulsation in the tumour. The improvement continued until the 14th, when slight pulsation was found to have recommenced. On the 15th the condition was entirely changed; strong pulsation could be felt all over the tumour, which had enlarged in every direction. The local condition had, in fact, become as it was when first seen by me, and as described at the beginning of this report. On consultation with the medical officers at Dover and Surgeon-Major Whitehead, Assistant Professor of Surgery at Netley, who had accompanied me, it was agreed that immediate operation appeared to be the only chance of saving the man's life: the patient consented without hesitation.

First operation.—The transperitoneal method of ligature of the common iliac artery was selected rather than the ordinary one, which in this case would have been of even more than usual difficulty, or, indeed, impossible; and every precaution as regards asepsis was observed. An incision was made from an inch below the umbilicus to within an inch and a half of the pubes, but later this had to be prolonged by another inch and a half, passing outside the umbilicus. When all bleeding points had been secured the peritoneum was opened to the same extent; the intestines were lifted out of the pelvis and pushed up towards the diaphragm, being retained there by a large flat sponge. The aneurysmal tumour occupied the whole of the external iliac vessel. At about the middle of the common iliac artery the peritoneum was opened and a strong silk ligature passed round the artery, which was normal in appearance. On attempting to pass the aneurysm needle from within outwards it hitched against some tissue which was in the way, but it passed readily from without inwards. All pulsation ceased on tying the ligature. As no blood or other fluid had passed into the pelvic cavity during the operation, no irrigation was done. The incision was then closed by silk sutures passing through all the structures of the abdominal wall, and the skin brought accurately together with horse-hair where necessary. The wound was dusted with iodoform and boracic acid powder, and iodoform gauze and alembroth wool dressings applied. My original intention was to complete the operation at one sitting by turning out the clots from the aneurysm and tying the femoral artery in Hunter's canal, if necessary; but as the operation was done in the afternoon of a very dull day and the light was extremely bad, and as the walls of the tumour became quite flaccid and all undue tension ceased immediately on the application of the ligature, we considered we might safely leave this portion of the treatment for a later and more favourable occasion, and the event proved the soundness of this view. The patient made an uninterrupted recovery from the laparotomy, the temperature never rising above 99° F., which point was recorded on the second day. The wound was dressed on the tenth day and was found to be perfectly healed. The circulation in the limb continued satisfactorily from the first, the collateral blood supply having become fairly well established before the operation.

Second operation.—As the tumour slowly diminished in size, the skin becoming loose and wrinkled from shrinking of the contents, and as no pulsation returned in it, there appeared to be no reason for the performance of the second part of the operative procedures until the patient had completely recovered from the laparotomy; accordingly the clots were not turned out until Dec. 21st. An incision about seven and a half inches in length was made over the tumour in the line of the sartorius muscle, commencing about one inch and a half below Poupart's ligament, and 2¼ lb. of very soft blood clot were removed, leaving a huge cavity occupying the upper and inner aspect of the thigh and extending from the bifurcation of the common iliac artery to the upper end of Hunter's canal. A small amount of the clot was firm, partly decoloured, and adherent to the walls of the cavity. There was little or no hæmorrhage. One ligature was put in, but it was hardly necessary. Very thorough irrigation was carried out, and the cavity filled with iodoform gauze, iodoform powder having been previously dusted in. Two sutures were put in at the middle of the incision, in order to prevent the skin from falling in, as it did in a similar case I had operated on, where the clots of a large aneurysm in Scarpa's triangle had suppurated and were removed. Dry gauze and alembroth wool dressings were applied; the knee and hip, which were fixed in a flexed and abducted position, were put straight while the man was still under the anæsthetic, and a back splint put on. The patient is still in hospital, but he feels perfectly well; the cavity is filling up by granulation; the circulation of the leg is perfect, and the limb is in good position.

Remarks.—On looking up the literature of transperitoneal ligation of the iliac arteries I find that Mr. Marmaduke Sheild[1] suggested that the comparative safety of modern surgical procedure would now warrant surgeons in always adopting this method. In the same volume[2] Mr. Mitchell Banks refers to Mr. Clement Lucas's case of ligature of the common iliac artery three years and a half previously for aneurysm of the external iliac artery, with recovery, and gives a case of his own of operation on the external iliac artery which recovered. He also mentions that Mr. Ballance and Mr. Edmunds had already drawn attention to three cases of ligature of the internal iliac artery reported by Dr. Dennis of New York, two being in his own practice, with one death. Mr. F. Treves, in his work on Operative Surgery, mentions a case under his care of ligature of the internal iliac artery in a boy aged sixteen years for vascular tumour of the buttock, followed by recovery. Mr. Makins has quite lately reported a successful case of ligature of both external iliac arteries in the same patient. As far, therefore, as the records are complete, we know of one case of ligature of the common iliac artery, four of the internal iliac artery, and three of the external iliac artery, done through the peritoneum, with only one death—i.e., among the cases in which the internal iliac artery was tied. The case just reported appears to be the second in which the common iliac artery has been ligatured through the peritoneum. The operation is simple and easy of performance, and if asepsis can be guaranteed, as it should be in these days, the mortality should be much less than that following operation by the older method. In the case under report no other procedure was possible. I am much indebted to Surgeon-Major Whitehead and Surgeon-Major Michael for their able assistance and advice at both operations.

Netley.

A CASE OF CÆSAREAN SECTION.

BY F. EVERARD ROW, L.R.C.P. EDIN., M.R.C.S. ENG.,
HONORARY SURGEON TO THE ROYAL ALBERT HOSPITAL, DEVONPORT.

AT about 2 A.M. on Feb. 25th, 1894, I was summoned to attend a married woman, a multipara. On arrival I found that she was in an exhausted condition, labour having commenced sixteen hours previously with strong and rapid pains. The membranes had ruptured six hours before I was sent for. On external examination I found very deep and extensive tertiary syphilitic ulceration, which extended from the mons Veneris to the tip of the coccyx, involving part of the buttock on either side. The labia majora were practically destroyed, and the whole of the perineal surface was a mass of foul granulation tissue, the anus appearing as a small depression in its midst. There was also a large ulcerated surface over the middle of the sacrum, and the whole of the room, bedclothes, linen, &c., reeked with the fetor of the discharge. Having regard to the length of the labour in a woman who had borne three children (the delivery in each case being perfectly normal), and the exhausted condition of the patient, I saw that operative interference of some kind was absolutely essential, and as it seemed impossible to deliver *per vias naturales* I determined to perform Cæsarean section. The circumstances of the

[1] Brit. Med. Jour., 1892, vol. ii., p. 974.
[2] Ibid., p. 1163.

case were explained to the patient, who gladly consented to the operation. I was unable at the time to remove her to hospital and the operation was undertaken in her own room by candlelight, all the surroundings being of the most septic character. The patient having been prepared as far as possible, ether was administered by Mr. J. R. Rolston. An abdominal incision eight inches long was then made, the bleeding from this being practically *nil*, and the uterus was seen and lifted out of the abdomen, when it was found to be firmly contracted round the contained fœtus. The broad ligaments being firmly grasped by Dr. Rider (who, together with Mr. Bearblock, then of the Royal Albert Hospital, Devonport, kindly assisted me), I incised the uterus for about six inches, when a slight gush of blood followed. The breech of the fœtus was quickly and easily delivered, and a minute or so later the head, which was firmly impacted in the vagina, followed. The child was living and quite normal, the only noticeable point being the enormous size of the caput succedaneum, testifying to the amount of obstruction the vagina had offered to its descent. After the removal of the fœtus I gently peeled off the placenta with three fingers in the uterus, and no further loss of blood occurred. The uterus having been sewn up with six deep and eight superficial silk sutures, and the peritoneal toilet attended to, it was replaced in the abdomen and the abdominal wound closed by silk sutures embracing peritoneum, muscle, and skin. The operation lasted about half an hour. The patient had a temperature of 99° F. before the operation and was very anæmic, the ulceration having spread very rapidly the previous three months. On Feb. 26th she had slept fairly well. She had not vomited; there was no distension of the abdomen or pain; the uterus had well contracted. The temperature was 100°, and the pulse was regular but somewhat feeble. On the whole, she seemed to be very cheerful and comfortable. A small quantity of milk and brandy was ordered. At 10 A.M. on the 27th the patient was found to have been comfortable since my previous visit. There was still no pain or abdominal distension. The temperature was 99° and the pulse was rapid and feeble; more milk and stimulants were ordered. At 5 P.M. I found her much worse. The pulse was flickering and the temperature was 99·4°. She was suffering from no pain. She died at 6.30 P.M. Permission to make a post-mortem examination could not be obtained.

Remarks.—I have recorded this case because I do not remember to have heard, or read, of Cæsarean section ever having been performed under such conditions as are described above. Of the necessity for such an operation in this case I feel well assured. The length of time the patient—a multipara whose former labours had been quite regular and easy—had been in labour, and her exhausted condition, pointed to the necessity of operative interference of some kind, while the peculiar condition of the genital track, which totally precluded the use of forceps or craniotomy, made me determine to perform Cæsarean section as giving the best hope both for mother and child, and I am convinced that the death of the mother was due far more to her previous exhausted condition than to the operation itself, which, although carried out under the most septic conditions, was followed by no signs whatever of infection. The temperature did not rise above 100°, while the patient expressed herself as feeling perfectly comfortable and being free from pain. I much regret that I was unable to obtain permission to make a necropsy, as I could then have seen the exact condition of the uterine wound, but as far as could be judged by external signs and the patient's symptoms, it was in a perfectly healthy state at the time of her death.

Devonport.

ROYAL HOSPITAL FOR DISEASES OF THE CHEST, CITY-ROAD, LONDON.—Mr. Hope Morley, the treasurer of the Royal Hospital for Diseases of the Chest, E.C., has sent a donation of £50 towards the £2000 urgently required by this hospital.

LADYWELL SANATORIUM, SALFORD: PRESENTATION TO THE LADY SUPERINTENDENT.—On the 17th inst. the nursing staff of this institution presented to Miss Thomas, the lady superintendent, a solid silver afternoon tea-set, with Doulton ware cups and saucers, on the occasion of her completing the twentieth year of service in connexion with the Salford Corporation Hospitals. The present was accompanied by an address congratulating Miss Thomas, and hoping that she may be long spared to continue in so good a work.

SOME POINTS IN THE PATHOLOGY OF DIPHTHERIA.[1]

BY E. F. TREVELYAN, M.D. LOND., M.R.C.P.,

ASSISTANT PHYSICIAN TO THE LEEDS GENERAL INFIRMARY; PROFESSOR OF PATHOLOGY IN THE YORKSHIRE COLLEGE, LEEDS.

THE following paper is chiefly based (1) on the minute morbid anatomy of a case of diphtheria fatal from cardiac paralysis; (2) on the examination of a certain number of culture boxes under the scheme adopted by the Leeds Corporation at the instance of its medical officer of health (Dr. Spottiswoode Cameron); and (3) on some of the recent literature of the subject. The patient referred to above was admitted into the Leeds General Infirmary under the care of Dr. Barrs. The diphtheria was of the faucial variety, the membrane being placed on the left tonsil. I examined some of this membrane on the sixth day of the disease and obtained from it the diphtheria bacillus in pure culture. The patient, a girl aged seven years, was injected with 5 c.cm. of serum (Schering) on the seventh day of the disease. Improvement set in after this treatment, but ten days later death occurred unexpectedly from cardiac paralysis. Albuminuria persisted up to the time of death. At the necropsy no diphtheritic membrane was found on the mucous membranes. The heart weighed 3½ oz. and was slightly dilated, but the muscular substance appeared to be healthy to the naked eye. The kidneys together weighed 5 oz. and were of a normal size, but their structure appeared blurred. The liver and spleen weighed 24 oz. and ¾ oz. respectively, and were apparently healthy.

The typical manifestation of the local lesion in diphtheria is a membrane of a more or less fibrinous character. The more superficial parts, containing the bacteria, are granular, and the deeper parts frequently include a cellular element. This fibrinous exudation not only occurs on the surface of the mucous membrane, but also in its more superficial layers, so that its detachment, especially in the fauces, may be difficult. As to whether a similar membrane is produced in other infections has been a matter of dispute, but the weight of evidence is in favour of this view ("pseudo-diphtheria," as it has been called). There is certainly a resemblance between the fibrinous exudation produced under certain circumstances by the pneumococcus and that produced by the diphtheria bacillus. In respect to the bacteriological evidence a membrane occurring in the fauces (perhaps of somewhat different aspect) has been shown, both morphologically and by culture, to contain the streptococcus alone (Streptococcus pseudo-diphtheria).

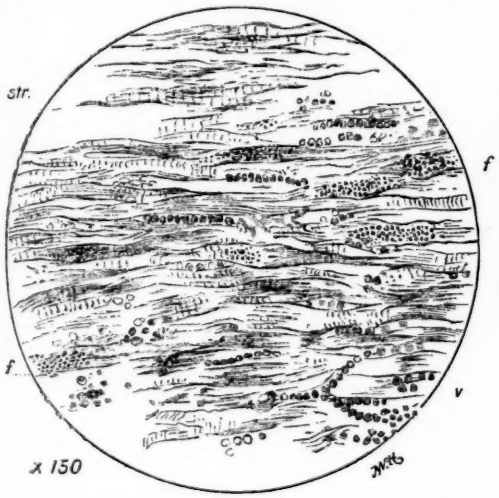
The *lymphatic glands* in the neighbourhood are damaged in their endeavour to arrest the progress of the disease. They undergo hyperplastic changes, but in pure infections apparently never suppurate, this latter process being the result of a secondary infection.

The *kidneys* in excreting the bacterial poisons are almost always injured, sometimes in a slight, but at other times in a marked, degree. The naked-eye appearances of the kidney of diphtheria may be, as in other acute nephrites, slight, but the microscope reveals evidence of a true toxic nephritis. The chief changes in the above-named case were found in the glomeruli and tubules. There was no evidence of excessive vascularity or round-celled exudation in the connective-tissue supporting framework. The capsular epithelium showed unmistakable evidence of proliferation. The tubules were frequently found filled with a homogeneous exudation, and the definition of the central limits of the cells was obscure, fading off into the exudation. In a section stained and decolourised according to Weigert's fibrin method this material in the tubules remained stained of a deep violet colour, often with a reddish tinge. In some parts the renal cells appeared to be of smaller volume and the nuclei fewer than usual. The most marked alteration of the renal cells lay in the convoluted tubes.

The changes in the *heart* are of great importance, as the larger proportion of cases of sudden death in diphtheria are connected with a profound alteration in the cardiac muscle. Whether some of these very sudden deaths may not be due exceptionally to a lesion of the pneumogastric nerves or of

[1] A paper read before a pathological meeting of the Leeds and West Riding Medico-Chirurgical Society on Dec. 13th, 1895.

the bulbar centres must be left an open question. The bacterial poisons of diphtheria appear to have almost a selective action upon nervous structures. In the fatal case above referred to, marked changes were present in the myocardium. Some of the cardiac muscle fibres were seen, in osmic acid preparations, to consist of granules staining a deep black colour. In some places the degeneration seemed to have advanced so far that no definite fibres were distinguishable. The striation of the fibres remained in certain places, but was obscure or lost in others. The muscle nuclei were indistinct, but no definite evidence of proliferation was found. The interstitial tissue seemed to be very little affected. There was no evidence of cellular exudation about the minute vessels. Thus the lesion appeared to be an acute degenerative myocarditis. (See illustration.) Dr. Schemm[2] examined the cardiac muscle in thirteen fatal cases of diphtheria, eight of which succumbed to cardiac paralysis. He found fatty and granular degeneration, swelling and increase in the muscle nuclei, slight hyaline



Acute degenerative myocarditis. *f*, fibre with fatty granules. *v.*, vessel. *str.*, striated fibres. Formol, osmic acid, Bismarck brown.

degeneration, and atrophy in the muscle fibres. These changes were present in all cases, but more marked in those which had succumbed to cardiac paralysis.

Pieces of the *pneumogastric nerves* were examined in the above-named case, but no lesion was found. The medulla was not examined.

The *spleen* is frequently enlarged, partly as the result of vascular engorgement and partly owing to proliferative changes in its parenchymatous elements.

The *liver* is often slightly enlarged, and the cells show evidence of cloudy swelling.

The *nerves* may be affected by a curious local periaxial neuritis.

An important question has arisen as to whether these pathological changes in diphtheria may be in any way induced or aggravated by the serum treatment. It has been stated by some observers that cardiac and renal lesions are more frequently found in cases so treated. The question has been well answered by other observers, who show that the increase in the number of cases succumbing to cardiac paralysis is more apparent than real—that, if deaths due to other causes in diphtheria are lessened, then those from sudden cardiac paralysis may appear to have increased; but it is only a relative and not an absolute increase. There is no substantial evidence to show that the serum treatment can in any way be directly connected with the cardiac and renal lesions found in these cases. Such lesions are present in a large number of fatal cases treated, or not, by the serum. It is surprising to see that so able a pathologist as Dr. Councilman[3] states that diphtheria has not the same tendency to produce nephritis as have other infections.

[2] Virchow's Archiv, August, 1890.
[3] Boston Medical and Surgical Journal, September, 1895.

It may be taken as beyond dispute that the diphtheria bacillus is the sole cause of true diphtheria. This bacillus, as is well known, is non-motile, about the same length as the tubercle bacillus, but thicker, and shows a curious unevenness or segmentation in its structure, owing to some parts staining more deeply than others. Its ends are frequently clubbed. It is necessary to note that this micro-organism varies considerably in its morphological appearances, according to the age of its growth and the character of the culture medium. Involution forms are common. In blood-serum tubes it is even said at times to grow in threads.[4] Most would deny that there is any characteristic stain for Löffler's bacillus, yet recently Crouch[5] maintained that, with a solution of dahlia methyl-green, the rounded bodies at the ends of the bacilli stained red, and the rest of a greenish colour. Crouch would look upon these bodies as of a nuclear nature, and as having nothing in common with spore formation; they are best seen in fresh cultures. Mr. Wager, formerly of the Yorkshire College, who has made some important observations on the structure of non-pathogenic bacteria, is inclined to look upon them as nucleoli. I have on many occasions used this dahlia methyl-green stain, but am not able to see as yet any special advantages in it. The diphtheria bacillus grows on all the ordinary nutrient media—nutrient gelatine, agar, and particularly glycerine agar. The great disadvantage attending the use of ordinary media is that the other micro-organisms so frequently associated with the diphtheria bacillus grow, if anything, more luxuriantly on these media and to some extent crowd out of existence the diphtheria bacillus. Hence it is that nutrient serum is frequently employed for differential diagnosis. Recently I have used an agar serum introduced by Tochtermann,[6] but have not as yet found any special advantages in it. The character of the colonies developing on these media is important. They vary somewhat according to the culture medium. They are round in shape, mostly of a greyish-white colour, with a darker centre and a granular aspect. As regards the distribution of the bacilli in the body in cases of human diphtheria, they are found only in the local lesion and do not penetrate deeply into that. Diphtheria, like tetanus, is eminently a toxic disease, all the lesions, except the local one, being set up by the poisons produced by the bacilli. A disease can be produced in susceptible animals by the injection of the isolated toxines corresponding in all particulars to that set up by the inoculation of a virulent diphtheria culture, with this exception, that the symptoms are produced with much greater rapidity. In the one case the poisons are injected ready-made; in the other they have to be manufactured at the site of inoculation. This, along with other evidence, shows that in the stricter sense diphtheria is an intoxication. The diphtheria bacillus is more rarely found alone in the local lesion, as in the case referred to above. It most often has its associates, such as the streptococcus and staphylococcus. This point is of considerable practical importance, not only owing to the difficulty which it introduces into the bacteriological diagnosis, but also from the point of view of treatment. Thus, the patient's life may be destroyed, not by the diphtheria infection, but from some other infection, such as that of the streptococcus, &c. The treatment adapted to a pure diphtheria infection may be quite inefficient in such cases.

A very important subject from the point of view of the prevention of the disease is the existence of the diphtheria bacillus outside the human body. It may exist apparently in the diphtheritic membrane for some two to four months and still maintain its powers of growth. The question of diphtheria occurring in some of the lower animals, such as cats and fowls, also needs investigation.

[Here the culture-box above referred to was described, and a sketch given of the methods employed in examining the diphtheritic membrane or secretion when received at the laboratory.] An American author, Dr. Ohlmacher,[7] has said that he is able to recognise diphtheria in four hours, whether growth on the medium can be detected by the naked eye or not. He then simply draws his platinum loop over the surface of the nutrient medium and proceeds to make cover-glass preparations, using very little water. I have only tried this method on a few occasions, but without success. When growth has appeared in the tube it is often

[4] Abbott: Journal of Pathology, vol. ii., 1894.
[5] New York Medical Journal, October, 1895.
[6] Centralblatt für Innere Medicin, October, 1895.
[7] Philadelphia Medical News, May 4th, 1895.

convenient to turn the nutrient cylinder out of the test-tube into a Petri's dish by means of gentle heat. The colonies can then be examined with considerable ease. If further cultivation is desirable the Petri's dish can be put into the incubator. If, on the other hand, it is desired to preserve the nutrient cylinder a few drops of formol can be poured into the dish, and thus a formol chamber is produced. Formol has in my experience proved itself to be a valuable addition to the laboratory both as a disinfectant and as a hardening agent.

In conclusion, it is almost impossible to exaggerate the services that bacteriology has already rendered to clinical work. Owing to it diphtheria is now perhaps one of the best understood of diseases. Thus in diphtheria is illustrated the happy result of judiciously combined clinical investigation and laboratory research. I have to thank Dr. Barrs for permission to make use of the case referred to in this paper, and Dr. Roberts, the resident medical officer at the Infirmary, for some valuable notes.

Leeds.

A CASE OF THORACIC ANEURYSM.

BY JOHN C. UNDERWOOD, L.R.C.P. LOND., M.R.C.S. ENG.

As the following case appears to me to present some unusual points I venture to think it may interest some of the readers of THE LANCET.

On May 13th, 1895, I was called to see a man aged fifty, and found him sitting up in bed suffering from considerable pain in the chest, and was given the following account of his illness. Until November, 1894, he had, with the exception of slight pain in the chest, enjoyed very good health; he had been physically very strong and had done a good deal of very hard work, including lifting heavy weights. About that time he experienced severe pain in the neighbourhood of the third costal cartilage of the left side, which obliged him to leave a van he was with and return home by train, when, and for some considerable time afterwards, he was attended by a medical man. His family history was good; his father died at the age of seventy-eight years; his mother, aged seventy-six years, suffered from some "liver trouble"; all his grandparents had attained old age; and his brothers and sisters were enjoying good health. As regards the patient's personal history there had been a possible contraction of syphilis when he was quite young, and this was, I think, borne out by several miscarriages on the part of his wife, no child living for any length of time. He used at one time to take a considerable quantity of beer, but had never been a drunkard. On examination he was found to be pale, worn, and anxious-looking; the pupils of the eyes were equal and medium-sized, the conjunctivæ were pale, and there was no arcus senilis. The tongue was pale and moist and protruded in a direct line. The bowels were regular. He had a slight hacking cough, rather harsh, but not brassy. His appetite was fairly good. He never had a headache. The chest was very well formed and broad, the ribs were well arched, and no superficial veins were apparent. In the lungs there was healthy vesicular breathing, except opposite the vertebral border of the left scapula, where there were slight dulness and pain, and the breath sounds were weak over an area measuring an inch and a half by two inches and a half. The heart dulness was normal, the sounds being rather weak The pulse was medium, soft, compressible, and not persistent, and that of the left side rather the fuller; this latter condition continued to the end. Dulness, pulsation, and tenderness were present at the left edge of the sternum, on the level of the third costal cartilage, just above the heart dulness. The abdomen was normal, the liver, spleen, and kidneys being normal also. No albumin was present in the urine. In the neck there were a few slightly enlarged glands at the posterior edge of the sterno-mastoid muscle. In June he complained that he could feel a trickling in his left chest; this I thought to be due to the rupture of a vein behind the sternum from pressure of the aneurysm. At the end of the month he began to experience severe anginal attacks, the pain proceeding from the neighbourhood of the swelling and running thence down the left arm, the hand becoming quite cold to the touch and the pulse being considerably lessened in volume, its rate being 92 per minute. The swelling enlarged gradually and to the left side, the pulsation, of an expansile nature, becoming more marked; the pain also grew more severe at times. I now recognised that the true aneurysmal sac had given way and that a false aneurysm was forming in the left anterior mediastinum. Eventually the whole front of the left chest became dull and pulsating, and the heart was gradually pushed behind the sternum. Breath sounds could be heard feebly for a time over the front of the chest and, up to the last, over the back, though much less than normal. Those on the right side became somewhat exaggerated, but not to the extent of being puerile. In October the second and third ribs were becoming absorbed, and at the last no ribs could be felt in front as far down as about an inch or an inch and a half below the nipple. At this time the tumour projected forwards to the extent of an inch and a quarter above the level of the ribs and was pulsating in a general expansile manner. Just before each of the frequently recurring attacks of pain the patient always described his sensations as "lumpy" or "in knots." Ten days before his death the tumour reached from the first rib to the seventh, and laterally from the right side of the manubrium to the axilla, its measurements being ten and a half inches by fourteen and a half inches, and one and a half inches from before backwards, as nearly as I could judge. In the early part of November I noticed that the left arm and hand were swollen, and also the back of the right hand to a slighter extent, and the superficial veins over the front of the tumour were enlarged, especially near the manubrium, the skin was dusky, and the wall of the tumour was becoming much thinner. Later a pulsating swelling about half an inch in diameter formed at the level of the fourth left costal cartilage, one inch from the sternum. When this was on the point of bursting I incised it and removed some blood-clot. This I did because I considered that the false aneurysm had perforated slightly at the higher point mentioned and was dissecting its way downwards between the skin and the sac. I applied antiseptic dressings to the opening, strapped them down firmly, and then applied a pad which was affixed to a stout piece of twill shaped and worn like an "ephod," this being kept tightly in position by four bandages, one from each corner. On Dec. 3rd, as he usually lay on his left side, but frequently changed his position, the "ephod" became displaced, and I was hurriedly summoned to stop a hæmorrhage from the aforementioned small opening; this was easily accomplished, and he lost but a small quantity of blood, the nurse having been instructed to press on the skin between the outer opening and where the inner one was situated. On the 5th and 7th there were two more attacks of hæmorrhage, and he lost considerably more blood and was much exhausted thereby. On the 11th, at 5 A.M., I was called, as another hæmorrhage had taken place. I found him unconscious, with widely dilated pupils, no pulse perceptible at the wrists, and the heart sounds scarcely audible. He partially recovered consciousness about 9 A.M., but on the following day he had no recollection of the previous one. On the 14th I was three miles distant when I was summoned to him again. On my arrival he was pulseless and unconscious. He was surrounded with hot-water bottles, sulphuric ether was injected subcutaneously three times, and one pint of normal saline fluid was passed into the rectum. He never rallied, and died in an hour. The treatment consisted of the exhibition of iodide of potassium up to 160 grains daily, morphia, belladonna, aconite, bromide of potassium, trinitrine, diaphoretics and diuretics, aperients, and subchloride of mercury in one-grain doses (but he only took six of these tabloids, as he became salivated), together with the application of belladonna plasters and inhalations of nitrite of amyl; he also was given subcutaneous injections of morphia and of morphia and cocaine, this latter combination relieving the pain more quickly. He had good nourishing food in as dry a form as possible, with plenty of fat, fluids being limited to one pint daily.

Necropsy.—Only the chest was allowed to be examined. Incisions were made through the skin along the clavicle, down the sternum, and across to the axillary line. The front wall of the false aneurysm was formed of skin and pectoral muscles only, these muscles being evenly spread all over the front of the tumour. At the inner part, near the sternum, there was a small opening through the fibres of the pectoral muscles. The whole of the left anterior mediastinum down to the diaphragm was filled with more than two quarts of recent blood-clot, the lung being squeezed to the back

in a thin layer and matted at its inner edge to the pericardium. The whole front part of the second, third, fourth, and fifth ribs and part of the sixth rib and costal cartilages were absorbed, except a small piece of the third costal cartilage, which projected into the clot. There were some loose pieces of rib and cartilage in the substance of the clot. The pericardium contained about half-a-pint of yellowish-brown serum. The heart was collapsed and covered with a thin layer of fat, its cavities being dilated and absolutely empty, and its walls flabby and pallid. The tricuspid opening admitted the tips of three fingers, the mitral two fingers, their valves, together with those of the pulmonary artery, being normal. The aortic opening permitted the index-finger to be passed freely through it; its valve was slightly incompetent. Immediately beyond the valve the true aneurysm commenced; it was quite globular, easily contained my closed fist, and lay behind the middle and upper bones of the sternum. The inner walls were extremely atheromatous, and between the openings of the innominate and the left carotid arteries there was a bony plate which snapped when I bent it. The aorta as far down as I could remove it presented much atheroma. The openings of the innominate, left carotid, and subclavian arteries were quite normal, as well as the arteries themselves. Antero-laterally to the left there was a ragged rent in the sac-wall large enough to admit the tips of my four fingers, opening directly into the false aneurysm. The front and right sides of the sac were lined by a nearly white laminated and organised layer of blood-clot about three-eighths of an inch thick. There was scarcely any fluid in the sac. I became aware, when too late, that I should have been allowed to remove the specimen.

Luton.

Clinical Notes:

MEDICAL, SURGICAL, OBSTETRICAL, AND THERAPEUTICAL.

A CASE OF PUERPERAL HYPERPYREXIA.

BY H. LAIRD PEARSON, M.R.C.S. ENG., L.R.C.P. LOND.

THE patient, a married woman, was delivered on Oct. 12th, 1895, the head of the fœtus being assisted over the perineum with forceps. On the evening of the fifth day the temperature was 107·4° F., having been preceded by a sharp rigor. There was no abdominal distension or tenderness; the lochia had ceased. The uterus was at once washed out with a 1 in 5000 sublimate solution; a powder consisting of calomel, 4 gr., and acetanilid, 10 gr., was given. In thirty-five minutes the temperature had fallen five degrees. The acetanilid was repeated every twelve hours, the uterus being washed out again twelve hours later. On the evening of the seventh day the temperature, which had remained at about 102°, rose to 106°. The uterus was again syringed out—making the third and last time—and in addition to the diurnal dose of acetanilid two grains of muriate of quinine were given every two hours. The temperature for the next fortnight gradually dropped to the normal. The acetanilid was given regularly for twelve days, the patient exhibiting fairly-marked continuous cyanosis; the quinine was administered a week longer. She is now well. The infant was still at the breast when the temperature stood at 107·4°; it died twenty-four hours later after bilious vomiting and convulsions.

Remarks.—Seven weeks earlier I was in attendance on a case of puerperal septicæmia that ended fatally; one week earlier a lying-in case gave me much anxiety on account of fever lasting a week; two other confinements during the same period were attended by no unfavourable symptoms. I must admit that I saw little hope for the patient with her temperature at 107·4° and obvious septic intoxication, and that the good result that followed was owing to the acetanilid. I have used the drug very extensively and place much reliance upon keeping the patient fairly cyanosed under it. I have never seen it produce alarming symptoms.

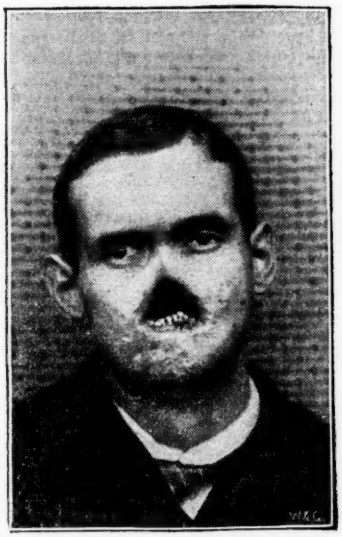
Holt Hill, Tranmere, Birkenhead.

EXTENSIVE LUPUS OF THE FACE GREATLY IMPROVED IN APPEARANCE BY AN ARTIFICIAL NOSE AND MASK.

BY E. J. SMYTH, M.B., B.S. LOND.,
RESIDENT MEDICAL OFFICER, CITY INFIRMARY, BIRMINGHAM.

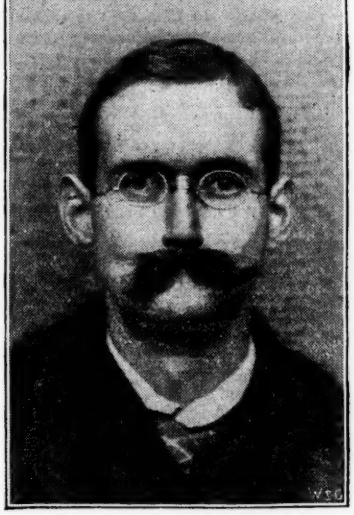
THE patient is a man aged twenty-seven years who has been under the care of Dr. Sydney Short in the Infirmary, Birmingham, for some months. He has suffered from lupus

FIG. 1.



of the face since twelve years of age, and, as will be seen by the illustration (Fig. 1), the resulting destruction of parts is very extensive. The nose, the adjoining parts of the cheeks,

FIG. 2.



the hard and soft palate, the alveolar portions of the superior maxillæ, together with the chief parts of the walls of the nasal fossæ, are completely destroyed. The mask, which

was made by Messrs. Salt and Son, consists of a nose with adjoining part of the cheeks and upper lip with moustache, and is kept in position by a spectacle frame. The greatly improved appearance of the patient (Fig. 2) together with the fact that speech is rendered much more distinct than before are points, I think, which make the case worthy of record.

HÆMORRHAGE AFTER TOOTH EXTRACTION ARRESTED INSTANTLY BY ETHYL CHLORIDE.

BY A. E. HIND, F.R.C.S. ENG.,
SURGEON TO THE JERSEY PRISON AND POST OFFICE.

A GIRL aged twenty years had a tooth extracted by a dentist at mid-day. She came to me at 10 o'clock at night bleeding freely from the socket of a lower molar tooth. She said that the bleeding had been continuous since the extraction. Pressure and plugging with perchloride of iron had been resorted to without any result. Remembering a case that resisted all ordinary methods of treatment I resolved to try freezing with ethyl chloride spray. After clearing out the clots I found that ethyl chloride spray stopped all bleeding immediately. To prevent it recurring on thawing I lightly plugged with wool soaked in tincture of hamamelis. Not another drop of blood escaped. There was no pain. Although ethyl chloride is much used for producing anæsthesia in small operations this suggests a further use.

St. Heliers, Jersey.

A Mirror OF HOSPITAL PRACTICE, BRITISH AND FOREIGN.

Nulla autem est alia pro certo noscendi via, nisi quamplurimas et morborum et dissectionum historias, tum aliorum tum proprias collectas habere, et inter se comparare.—MORGAGNI *De Sed. et Caus. Morb.*, lib. iv. Proœmium.

UNIVERSITY COLLEGE HOSPITAL.

THREE CASES OF OPERATION ON THE GALL-BLADDER.

(Under the care of Mr. A. E. BARKER.)

THE following cases are examples of operation for the effects of the impaction of gall-stones in the biliary passages, and show some of the different conditions for which surgical interference is required. In the first two the difficulties in the removal of the stones were apparently easily overcome, but the third, although it was successfully treated, differed considerably from the others in the state of the gall-bladder, and required special measures in order to prevent escape of bile into the peritoneum after operation. Although we do not hold with Czerny that the operation for gall-stones is much less serious than that for the removal of stones from the urinary bladder, still there is no doubt that the statistics of the operation are much more favourable than has been supposed, and that many lives have been saved and rendered endurable by the operation.

CASE 1.—A man aged thirty-nine years was admitted into University College Hospital on May 17th, 1895. He had always enjoyed fairly good health and had been temperate, but suffered from dyspepsia; he was not subject to bilious attacks. His family history was good. In September, 1894, he had suffered from a severe attack of choleraic diarrhœa, lasting four or five days. During the same week he was attacked with very severe abdominal pain, only relieved by morphia. The pain passed off quite suddenly, and he brought up a good deal of bile. A few days before admission he was again attacked with similar pain, lasting twenty-two hours. Twice he was sick, bringing up bile each time. Dull, aching pain had remained ever since except when he lay quite still, and was noticed in the right hypochondrium and umbilical region. There was a well-defined prominence an inch and a half to the right of the umbilicus and one inch below it. This moved up and down with respiration. The right side of the abdomen was rather more rigid than the left. The lump felt was tender to the touch, and its upper limit could not be defined. Over this lump the abdomen was resonant up to the border of the liver, which extended in the nipple line nearly an inch below the ribs. Nothing abnormal was to be felt in the rest of the abdomen, and there was no jaundice at any time. Regarding this case as one of gall-stone impacted in the cystic duct, Mr. Barker operated as follows. On May 18th chloroform was administered, and a three-inch incision was made over the tumour through the outer border of the rectus muscle, the upper end of the cut being about one inch below the costal margin. All bleeding, which was trifling, having been stopped, the peritoneum was opened and the lump exposed just under the border of the liver. It was seen to be a distended gall-bladder, red and œdematous from inflammation, and adherent to the margin of the liver. The serous surface of the gall-bladder was now sutured to the parietal peritoneum all round a central space. Through the latter the viscus was incised, giving exit to a quantity of clear, opalescent, mucoid fluid, followed by about one ounce of pus. Then a quantity of biliary concretion was removed with a scoop. The finger was thereupon introduced into the cystic duct for about three inches, and a solid calculus was felt high up. This was caught with some difficulty in a long forceps and removed when the passage appeared to be quite free. The calculus was oblong and about as thick as an ordinary cedar pencil. A piece of drainage-tube was now inserted into the gall-bladder, the opening of which was sutured round the tube. The wound was then closed round the drainage-tube and covered with gauze (alembroth). The projecting portion of the tube was now united by means of a bit of glass tube with a longer rubber tube which terminated in a feeding-bottle by the patient's side. Recovery was quite uneventful. The bile drained into the bottle, without soiling the dressings, to the extent of two or three ounces daily. The tube was removed on the seventh day, and the stitches were taken out on the ninth day. On the twenty-second day the wound was healed and the patient was quite well. With the exception of the second day, when the temperature rose to 100·8° F., it was under 99° until the end of the case.

CASE 2.—A woman aged forty years had been seized six months before admission with violent abdominal pain coming on suddenly and shooting down the right side. The patient had also suffered from "sick headache" for the preceding six months. Again, one month previously, a sharp pain came on, shooting down the right leg through the right side of the abdomen. The patient was "doubled up" by this, and it lasted on and off for a week. A lump was then noticed in the abdomen which she said had become softer within the last two days. The pain was felt in the right side and loin. The patient was thin and wiry, and her abdomen was flat and slightly fuller on the right side. Here the muscles were rather rigid, and under them a tumour could be felt about two inches to the right of the middle line and extending to just below the umbilicus. This was moderately firm and elastic and could be well felt between the hands placed one in front and the other in the flank. It moved up and down with respiration. The percussion note was dulled over it, but resonance of the colon was present in the flank. The liver was not enlarged. There had been no jaundice. The tumour was regarded as either a floating kidney or an enlarged gall-bladder—most likely the latter. An operation was performed on June 20th, 1895. Chloroform was administered, and an incision three inches and a half long was made through the outer part of the rectus muscle. A few small vessels were clamped. The lump was at once seen to be a distended gall-bladder. It was sutured to the parietal peritoneum with a continuous silk suture and incised vertically. A very free escape of clear mucous fluid took place to the extent of about five ounces. The finger on being introduced could not reach the upper end of the gall-bladder, and in the attempt the stitches tore away. With the finger in the peritoneum a large stone could be felt in the cystic duct. After much manipulation and with a long forceps this was with difficulty extracted. The gall-bladder was again sutured to the peritoneum and round a long rubber tube whose upper end rested in the cystic duct. The abdominal wound was then closely sutured round the tube, which was carried through the salicylic wool dressings into a bottle placed at the patient's side. The calculus weighed sixty-four grains. The bile drained well into the bottle until the ninth day, when the tube and stitches were removed. A few days later the wound was quite healed and convalescence was complete. Recovery was uneventful except for a rise of temperature on

the eighth day to 103·8° F., for which no reason could be assigned.

CASE 3.—The patient, a woman aged forty-one years, was admitted to hospital on Nov. 11th, 1895. She had been a healthy woman all her life except for a tendency to chronic diarrhœa, amounting to two or three loose stools daily. She had never been two months without this symptom. The present ailment began with an attack of jaundice in 1889, followed for some years by occasional attacks of the same condition, and then much more frequently. She passed the first biliary calculi in 1889 and since 1892 had frequently passed them. The size had been about that of a pea. Attacks of jaundice with passage of calculi occurred with each of the four pregnancies. Her mother had probably suffered in a similar way. Her father was alive and healthy. The present series of attacks of jaundice with passage of calculi occurred in July, August, September, and October last, and one was observed on Nov. 12th, the day after her admission to hospital, and another on the day following. These were accompanied by great abdominal pain, sickness, and icterus, with slight rise of temperature. An examination of the abdomen showed much subcutaneous fat and yellow skin. The liver did not appear to be enlarged (it was subsequently found to be so), and no definite tumour could be felt. Relying on the symptoms, an operation to explore the condition of the gall-bladder was proposed and readily agreed to. The operation was performed on Nov. 14th, 1895, gas and ether being administered. Nothing abnormal could be felt under the anæsthetic when the abdomen was relaxed. An incision was made through the outer border of the right rectus muscle for about four or five inches, beginning just below the rib. The subcutaneous fat was fully an inch thick. When all bleeding had been stopped the peritoneum was slit, and it was at once seen that the liver was much enlarged, reaching from two inches and a half to three inches below the ribs. It showed well-marked signs of perihepatitis. On raising its border the omentum was found to be adherent to its under surface by old inflammation. The adhesions were clamped and divided. The gall-bladder could only be seen by pulling the liver strongly upwards, as it was very deeply seated and only about as large as the last joint of the thumb. It was also adherent to the duodenum. To the finger it appeared very hard, as though containing a calculus. Before opening it the wound was packed with sponges and over these with iodoform gauze. On incising the gall-bladder cautiously only a small quantity of clear fluid escaped, and with a sharp spoon a little calculous débris was removed. A long probe was then passed up the cystic duct, and at a distance of about five or six inches from the skin it entered the dilated common duct, and a large quantity of clear mucoid fluid followed by muco-pus escaped to the extent of some four or five ounces. But no stone could be found. A thin rubber drainage-tube was then introduced into the shrunken gall-bladder and as far up the cystic duct as was possible. It completely filled the wound in the gall-bladder. The gauze packing and the sponges were now removed, and when the whole area of operation had been again sponged over a mass of omentum was drawn up and placed round the gall-bladder and tube as a dam. The latter was then again packed round with strips of iodoform gauze, the end of each being carried out of the wound. When this was completed the latter was closed with silk sutures except where the tube and the strips of gauze ran out. The tube was then connected with a bottle as in the other cases. The patient bore the operation well and was only sick once from the anæsthetic. On the next day the tube was slightly displaced and the wound was dressed; only some blood was found in the dressings. About four ounces and a half of bile had drained into the bottle. With the exception of one or two hitches in the action of the drain-tube, which were followed by jaundice, vomiting, and fever of short duration, the recovery of the patient was rapid. Soon after the tube into the gall-bladder had been removed, on Dec. 11th, the external wound closed and the patient appeared to be quite well. She has since left the hospital apparently quite well.

Remarks by Mr. BARKER.—These cases illustrate one of the most beneficial branches of abdominal surgery. The distress caused by biliary calculi impacted either in the cystic or common duct is very great, and the risks of the condition do not need to be insisted upon. The ease with which such calculi can be removed is seen in Cases 1 and 2, and the difficulties and risks in Case 3. Where the gall-bladder can be drawn into the abdominal wound the operation is very easy, and the contents of the bladder can be easily prevented from entering the peritoneum; but where the viscus lies deep and is immovable, as in Case 3, it is very difficult to prevent this escape. Under such circumstances I have found the method of packing iodoform gauze all round the swelling before incising it most useful. And, finally, if the bladder will not come up to the peritoneum the latter must be stripped off from the rectus sheath and pressed down to the gall-bladder and stitched to it, as recommended by Mr. Mayo Robson. But even this in some cases is inadequate to shut off the peritoneum completely. In such a case I have found it well to follow the method of the surgeon named, and to draw the omentum into the opening remaining, and to stitch it there to close it. The mode of draining the gall-bladder employed here I first saw put in practice by Dr. Körte in Berlin. It has the merit of keeping the dressings free from bile and obviating the necessity of frequent change. It answered admirably in all these cases and in others in which I have employed it, and saves a great deal of trouble and some risk from frequent dressings. The difficulties encountered in Case 3 were very great, owing to the enlargement of the liver and the depth and small size of the gall-bladder, as well as the presence of a large quantity of mucus and pus in the dilated ducts. But these difficulties were overcome with care, and at no time after operation was there any evidence that septic matter had found its way into the peritoneum. As soon as it is seen that the bowels act and that the motions contain the normal amount of bile the tube in the gall-bladder can be removed in such cases as the above, and where the proceedings have been as detailed no biliary fistula results.

Medical Societies.

PATHOLOGICAL SOCIETY OF LONDON.

Escape of Diphtheria Bacilli into the Blood and Organs.—Extensive Hæmorrhage due to Pyogenic Micro-organisms.—Syphilitic Arteritis of the Ascending Aorta.—Cancer of Colon associated with Membranous Colitis.—Epithelioma in an Œsophageal Pouch.

AN ordinary meeting of this society was held on Jan. 21st, Mr. BUTLIN, President, being in the chair.

Dr. KANTHACK and Dr. J. W. W. STEPHENS read a paper on the Escape of Diphtheria Bacillus into the Blood and Organs. They said that it was generally asserted that the diphtheria bacillus did not escape from the membranes and was found there alone, not entering the lymphatic or blood stream. Wright of Philadelphia, Frosch, and others had shown that the escape of the diphtheria bacillus into the organs and even into the circulation was by no means uncommon, at least in fatal cases. The writers recorded a number of observations made on 19 fatal cases of diphtheria which had been clinically of a severe type. In all these 19 cases the lungs after death contained diphtheria bacilli in large numbers; in 13 of them there was marked broncho-pneumonia, which they considered to be diphtheritic in nature; anyhow, it was erroneous to assume that the broncho-pneumonia complicating diphtheria was of purely pyococcus origin, as was frequently believed. Wright examined 14 cases, and found the diphtheria bacillus in the lungs in 13, and in 10 of those there was also broncho-pneumonia, and it should be remembered that Frosch and Kutscher also frequently found the bacillus in the pneumonic foci. But in their own cases, and in those described by Wright, the diphtheritic process was generally laryngeal, membrane frequently extending below the glottis into the trachea. Sixteen of their cases were laryngeal diphtheria, and in 12 of these there existed broncho-pneumonia, while amongst Wright's cases 9 were laryngeal, with broncho-pneumonia in 6 of them. Tracheotomy had been performed in most of them, but they did not consider this operation to be the cause of the appearance of the bacilli in the lungs, since in most cases the children had been admitted in a dying or serious condition and generally died one or two days after the operation. Since broncho-pneumonia frequently appeared without a previous tracheotomy, that operation could not be accused of being the cause of the broncho-pneumonia. From their observations they concluded that the broncho-pneumonia which so frequently

accompanied diphtheria was frequently, if not generally, diphtheritic in nature. The spleen was examined in 14 of the 19 cases and bacilli were found in 10 instances, while Wright found them present only in 2 cases out of 14. They explained their results by the fact that they used a culture medium prepared from ascitic fluid made strongly alkaline to which 1·5 per cent. agar-agar, 5 per cent. glycerine, and 1 per cent. grape sugar had been added. This medium had a strong selective action on the Klebs-Löffler bacillus. They further found that the presence of bacilli in the spleen was associated in all their cases with the presence of bacilli in the lungs, and in 75 per cent. there was broncho-pneumonia as well. In fatal cases, therefore, it must be allowed that diphtheritic infection readily became general. An escape of the diphtheria bacillus might occur in one of four ways: (*a*) by accidental and direct transference from one part of the body to another; (*b*) along existing passages, such as the nose, lacrymal duct, œsophagus, trachea, bronchi, &c.; (*c*) along the lymphatics, since diphtheria bacilli were frequently found in the cervical and bronchial lymphatic glands; and (*d*) by the blood stream into the spleen, liver, kidneys, &c. Experiments on animals made by others clearly established the possibility of such an escape of the diphtheria bacillus from the seat of infection into the liver, spleen, or blood. They concluded from these observations that Dr. Sidney Martin's hypothesis regarding the process of intoxication was hardly tenable. He believed that a ferment was secreted by the bacilli, which on absorption converted the tissue proteids into toxic albumoses, and that these products of digestion were the specific poison of diphtheria. This might be so if it were true that diphtheria bacilli were found in the membrane and in the membrane alone. This, in fatal cases at least, was not the case, for the lungs almost always contained them, and the spleen very frequently. They regarded the diphtheria poison as a direct product formed by the bacterial cell, and whersoever there were diphtheria bacilli there the poison appeared in the membrane, and in the lungs it must be present in large amount. The poison was absorbed as such and found its way into the spleen, where, moreover, bacilli might be actually present. The albumoses they considered to be contaminating, which appeared in many infective processes, and were carried down by the precipitant together with the true toxic bacterial product. The albumose theory, as stated by Dr. Martin, could hardly stand, unless the absence of bacilli beyond the membrane was established, and even then it was not quite convincing. Clinically they thought their observations were of importance, since they proved the necessity of using the antitoxin energetically in all serious cases of diphtheria, the amount of toxine when, for instance, the lungs were infected which had to be counteracted being enormous.—Dr. WILLIAM HUNTER expressed the view that the observations just recorded went very far to show that so far from an "escape" of diphtheria bacilli being the exception, as hitherto supposed, it was rather the rule. It was certainly a remarkable fact that they were present in such numbers in the lungs. Their presence in the spleen was specially interesting in that it afforded a more satisfactory explanation of the presence of albumoses in that organ than the view originally put forward by Dr. Martin, that a ferment formed at the seat of infection in the throat was carried to the spleen, and there induced a formation of poisonous albumoses independent altogether of organisms.—Dr. GOODALL asked if Dr. Kanthack had examined many cases in which the larynx was not involved. It was common to see severe cases of diphtheria in which nothing was found in the pharynx, larynx, or lung, and which nevertheless terminated fatally. He also inquired if a distinction had been made as to the varieties of diphtheria bacillus which had been isolated from each case.—Dr. KANTHACK, in reply, said that his paper included statistics of the work of others, amounting in all to over 100 cases, and in nearly all diphtheria bacilli were found in the lungs, and the lungs in many cases were noted as appearing perfectly normal. The spleen was not usually enlarged, and its naked-eye appearance was no criterion as to the presence or absence of bacilli. Four of the cases in his own series were not laryngeal, and yet diphtheria bacilli were found in the lungs; and this experience had been confirmed by others. The bacilli had been cultivated from the patients during life and were found highly pathogenic to guinea-pigs.

Mr. RAYMOND JOHNSON brought forward a case in which Extensive Hæmorrhage was associated with the presence of Pyogenic Micro-organisms. A boy aged fifteen years came under treatment for an illness of three weeks' duration, which began with painful swelling of the region of the left knee. Within a week of the onset similar symptoms were referred to the right hip and the right shoulder. The swelling about the knee had been incised and pus evacuated. When first seen the boy was very ill and his temperature 100°F. There was distension of the left knee-joint and an incision exposed bare bone on the tibia; the right buttock was occupied by a tender fluctuating swelling, and there were redness and swelling over the outer third of the right clavicle. The knee, which contained thin pus, was drained and a sequestrum subsequently removed from the tibia; the inflammation of the clavicle subsided without suppuration. The supposed abscess in the buttock proved to be an extensive extravasation of blood extending to the back of the femur, on which there was a small bare patch. The fluid in the left knee and the blood extravasated about the right femur both contained the staphylococcus pyogenes aureus in abundance. The case was one of multiple infective bone inflammation, and the view was expressed that the extravasation of blood about the femur was the result of hæmorrhage occurring in the very earliest stage of suppuration beneath the periosteum. There was no support for the possible explanation that the organism was merely growing in blood extravasated as the result of injury or other cause. It was pointed out that, had the nature of the case not been clearly indicated by the other lesions, the relation of the hæmorrhage to the presence of pyogenic micro-organisms might easily have been overlooked. Reference was made to a communication brought before the society by Mr. Watson Cheyne in 1884 on two cases of idiopathic purpura hæmorrhagica in which micro-organisms were found. In one case small bacilli and in the other streptococci were found in the capillaries around the hæmorrhages, and it was suggested that the latter resulted from the blocking of small vessels by plugs of the micro-organisms. The present case was brought forward in the hope that it might serve as a further inducement to the bacteriological investigation of cases of spontaneous hæmorrhage.—The PRESIDENT said that several cases of hæmorrhagic periostitis had been described and figured by Mr. Thomas Smith.—Dr. KANTHACK said that he had examined three cases of purpura hæmorrhagica; two of them were hæmorrhagic effusions in the course of diphtheria; in one pneumococcus and in the other streptococcus were found. In the third case nothing was found clinically to account for the hæmorrhages, but in the blood and spleen were found micro-organisms like the diphtheria bacillus. Dr. Gee had observed that if careful post-mortem inspection was made of bodies dying of purpura hæmorrhagica in which no other lesion was diagnosed during life evidences in the throat suggestive of diphtheria might be discovered.

Dr. PYE-SMITH showed a specimen of Syphilitic Arteritis of the Ascending Aorta, and he wished to call attention to the nature of the lesion. The patient, a man aged thirty-two years, was admitted to Guy's Hospital last December with signs of severe aortic obstruction and regurgitation. There was no history of rheumatism, chorea, or of scarlet fever, and it was not likely to be ordinary atheroma, as the patient was young, was not athletic, and his work was very light. As to syphilis, there were no signs, and the history with regard to this was defective. He had been ill for only three weeks, and died after being a fortnight in hospital. Post mortem the aortic valves were found to be deformed, and there was a patch of recent arteritis in the ascending aorta. The patch was soft, injected, and had a swollen edge with a crescentic margin, which reminded him of a secondary specific skin eruption. There was no atheroma elsewhere, but the testes showed decided fibrous degeneration. It had been said that aneurysm in woman was always due to syphilis, but the last two cases he had seen were against this view. In one the patient was a strong woman who had been a carrier of milk-pails for years, and in the other there was no sign or probability of syphilis.—Dr. NORMAN MOORE asked if strain could produce these results in the aorta. He was convinced that very few cases could be explained in that way. He felt sure that the whole subject wanted investigation afresh. In the majority of cases the cause would be found to be syphilis; in a few infection from endocarditis; and in others possibly infection, but certainly some cause other than strain.—Dr. ROLLESTON asked whether there was a specific form of arteritis. Was ordinary atheroma different from syphilitic arteritis?

He referred to a case in which the aorta was thickened and its lumen diminished while the intima was intensely swollen and translucent looking; in that case there was testicular evidence of syphilis. He cut sections and found that the vasa vasorum were surrounded by small masses of cell exudation. He then cut sections from cases of non-syphilitic atheroma, and he found that the sections showed much the same thing, and Dr. Mott and Dr. Hebb had confirmed this observation. He thought, therefore, that there was no special form of atheroma due to syphilis. The case shown appeared to be subacute, if not acute, and he thought it might be an early stage of an ulcerative aortitis.—Dr. PYE-SMITH, in reply, said that he could not admit the view that it was a case of septic infection. There was less deformity, less calcareous induration, and more soft thickening than was usual in atheroma. He was not disposed to give up the idea of strain as a cause, for there were certain broad facts in favour of that view. The disease was most common in males; it appeared at the most active period of life; it affected the parts of arteries most exposed to strain, such as the popliteal, but this view did not exclude other causes which might be at work.

Dr. PYE-SMITH then brought forward a specimen from a case of Cancer of the Colon associated with Membranous Colitis. The subject was a spare-looking woman aged fifty-nine years, who was admitted with enormous distension of the abdomen, and she was passing membranous casts. It was obvious that she had stricture of the large intestine, and her age and other signs pointed to the existence of an annular malignant growth in the colon. She passed membranous shreds eighteen inches in length, flat pieces and cylinders, which were found to be composed of mucin and entangled a few leucocytes. Their great abundance suggested a stricture high up; she refused colotomy, and died without relief. Post-mortem examination revealed an annular stricture in the sigmoid colon, and the gut above it was distended and hypertrophied. The casts were found below the stricture, but not above it, and they all appeared to have been formed in the lowest segment of the sigmoid colon and in the rectum. The mucous membrane was normal and its epithelium intact.

Dr. G. NEWTON PITT showed a specimen of Epithelioma of a Pharyngo-œsophageal Pouch which had produced a fatal obstruction and death from exhaustion. The pouch, which was an inch and a half long, opened on the posterior wall of the œsophagus at the level of the cricoid cartilage and towards the right side. On the anterior wall of the pouch there was an epitheliomatous growth which had not spread through into the œsophagus itself. The specimen was removed from a man aged fifty years, who at the age of twenty-five was laid up for a year with a very severe sore throat. Two years ago he first noticed a slight difficulty in swallowing, and that frequently he required to take his meals alone, as much of his food was returned and had to be expectorated. This difficulty had been greater for the last year, and during the last two months he had only taken liquids, and with difficulty. For the last three weeks of his life even fluids could not be swallowed. He refused operation and was fed per rectum. The obstruction was found just below the cricoid cartilage, and a bougie could not be passed beyond this level. The pouch was at the seat where these diverticula generally occurred and were somewhat infrequent, but he had not found a record of an epitheliomatous growth in one of the pouches, although it was not remarkable that such degeneration should occur.—The PRESIDENT said that three years ago he looked through the literature of this subject, but he could not find one case which terminated in malignant disease. An examination of museum specimens and of published cases would point to the fact that cases of œsophageal pouch were rare, but many must have occurred which had not been published. He himself had operated on two cases and he knew of two or three others. Some of these cases had been regarded as strictures and had died of starvation.—Mr. TARGETT said it was possible that the pouch was the result of the malignant obstruction, but he had carefully examined this case and did not think it had arisen in that way. The pouch probably existed first and the malignant growth occurred afterwards; the same thing had been noted in the case of sacculi in the bladder. Though these growths in vesical sacculi were usually cancerous, there was one labeled as sarcoma in the museum of Middlesex Hospital. In that instance the growth was situated entirely within the sacculus.

Dr. G. NEWTON PITT showed a specimen of an Atrophied Kidney with a Congenital Stricture of the Ureter. The kidney was smooth on the surface and practically normal, there being no appreciable hydronephrosis. About half an inch down the ureter there was a dense fibroid stricture admitting only a probe, and beyond this it was normal. The opposite kidney was somewhat hypertrophied. The specimen was removed from a young adult, who gave no history of any calculus or of traumatism of the abdomen. On two other occasions Dr. Pitt had noticed strictures of the ureter without obvious cause at the same spot, and he raised the question whether such strictures were not due to some congenital defect.—Dr. ROLLESTON said that in cases of unilateral hydronephrosis he had often seen a kink at about an inch from the commencement of the ureter, although he had not discovered a cause for it.—Dr. HERRINGHAM said that in St. Bartholomew's Museum there was a specimen of stricture of the ureters high up in a man who also had a stricture of the urethra, and he wondered if it might have been caused by the upward extension of gonorrhœal infection.—Dr. PITT replied that in one case the patient was an infant, and the cause there could not have been gonorrhœal.

The following card specimens were shown:—

Mr. RICHARD LAKE: Urinary Calculi from an Ox.

Dr. ROLLESTON: Metastatic Growth in Breast.

HARVEIAN SOCIETY OF LONDON.

Children's Spines.

A MEETING of this society was held on Jan. 9th, the President, Sir JOHN WILLIAMS, Bart., being in the chair.

Mr. EDMUND OWEN read a paper on Children's Spines, healthy, unhealthy, and otherwise. He began by calling attention to the lines and the workings of a healthy backbone, and illustrated his remarks by diagrams and photographs taken from pictures in the National Gallery and other collections. He said that the only way to examine the spine was to have the child stripped naked and lying on a flat surface. After this, the child was to sit up and bend his head down towards his knees as in the attitude of Flandrin's "Bather" in the Louvre. Then the amount of extension should be tested, and, lastly, the boy should be made to stand up, and, his pelvis being fixed by the hands, he should be made to turn and look behind him. In this way every vertebra was disturbed upon its fellow. A child who could do this certainly had no spinal osteitis. A cast was shown of the antique statue of "Lo Spinario"—the boy who is extracting a thorn from the sole of his foot. In this cast the spine is seen bent and rotated in an attitude which no diseased spine could possibly assume. The methods of examining a doubtful spine for caries, which consisted in tapping the heels or the spinous processes or in applying a hot sponge along the spinal groove, were mentioned for the sake of condemning them, though there was a good deal to be said in favour of the application of gentle pressure downwards upon the head. Inflammation of the spinal bones was always of tuberculous origin, and the treatment was comprised in one word—rest. As regarded the class of spines that were neither healthy nor yet unhealthy a special class was suggested for them, and it seemed to be a growing class, for some practitioners spoke of, and dealt with, mere weakness of the spine as if it were a disease by itself and not a result of constitutional defects in the child. The spine was apt to be regarded as something separate from the child itself, and an unnecessary amount of fuss was being made about it. Mr. Owen gave several instances of cases of slight deflection of the spine which had been brought to him by mothers who had been needlessly alarmed by the outlook foreshadowed to them in case they declined to hand over their children to immediate and prolonged surgical treatment. He remarked that St. Paul had cautioned people against leading captive silly women and he thought that the caution was as much wanted to-day as it was in the Apostolic times. It was apparently a very easy matter to lead a mother into captivity when contingent advantages to her child were at stake, but it was the duty of every member of the medical profession to set his face against anything which had even a suspicion of being opposed to squareness of conduct and uprightness of intentions. He did not for a moment think that anyone was knowingly and intentionally dishonest in these matters, but he had no hesitation in saying that by constantly looking at the

spine as if it were a thing apart from the rest of the child a practitioner was apt to lose all sense of anatomical perspective and clinical proportion.

Mr. NOBLE SMITH, Mr. PAGE, and Mr. PEYTON BEALE took part in the discussion of the paper.

The annual meeting and conversazione of the society was held on Jan. 16th, at 8 P.M., in the Stafford Rooms, Edgware-road, W., the PRESIDENT being in the chair.

The annual reports of the council and treasurer were read and unanimously received. The President then delivered his annual address, in the course of which he dealt with the changes that had occurred in the various examining bodies with regard to their examinations in midwifery, showing how some thirty years ago this subject received but scant attention at their hands. He pointed out how important it was that those who presented themselves for examination in midwifery should be able to satisfy the examiners as to their knowledge of the shape and diameters of the female pelvis, the anatomy of the pelvic organs, and the size of the fœtus at various times during gestation and particularly at term. He said that upon these data rested the science and art of midwifery, and they were the first essentials of that science. He then went on to describe the changes which had taken place during the last forty years in various operations — turning, the use of the forceps, craniotomy, and Cæsarian section—and showed how the recognition of the relative sizes of the pelvis and of the fœtus had influenced the manner in which these operations should be undertaken and the period at which they should be performed. He concluded with a criticism of the term "meddlesome midwifery," and showed how proper interference undertaken at the proper time, during gestation or labour, might be justifiable, and even imperative, so long as its aims were the saving of the life of the mother and child. The result of the ballot was then announced, all the officers upon the list having been duly elected.

Dr. FARQUHARSON, M.P., in proposing a vote of thanks to Sir John Williams, the retiring President, congratulated the Harveian Society on having obtained the services of so eminent a member of the profession and so excellent a President. He understood that during his presidency the society had added thirty-seven new members to its list, and had now a balance of £65 in hand, these facts of themselves showed how admirably Sir John Williams had presided over the Harveian Society.

The motion was seconded by Dr. LEWERS, and carried unanimously.

Mr. EASTES proposed a vote of thanks to Mr. H. Cripps Lawrence, the Hon. Treasurer, and stated that the society was now in a more flourishing condition than it had been for years past. This was in great measure due to the able manner in which Mr. Lawrence had controlled the funds.

A vote of thanks to the retiring members of the Council was proposed by Dr. HARE and seconded by Dr. MORTON. Both motions were adopted.

Sir JOHN WILLIAMS proposed a vote of thanks to the retiring secretary, Mr. Peyton Beale. He said that Mr. Beale had been a most indefatigible secretary. He had provided an excellent series of papers during the session, and had spared himself no trouble in arranging for the various meetings and social gatherings. He referred especially to the annual dinner of the society, which had been such a marked success, The members present had only to look at the walls of these rooms to realise the energy and good taste which he had expended in the performance of the duties of senior secretary.

The motion was seconded by Dr. HILL and carried unanimously.

Mr. PEYTON BEALE briefly replied.

Sir JOHN WILLIAMS then declared the conversazione open and left the chair.

A collection of sixty-five sketches in water colours by Miss S. Sophia Beale was exhibited. These included sketches of Poole Harbour, London, and Honfleur, and were much admired by the members and their friends. There was some excellent singing by Mr. Walter Hett, Mr. P. G. L. Webster, Mr. J. W. Myles, and Mr. Staples, Dr. Maguire accompanying on the piano. Dr. Haydon played a violin solo, and Mr. E. W. Roughton a violin obligato to one of the songs.

The following were elected officers of the society:—President: Mr. J. Knowsley Thornton. Vice-Presidents: Dr. W. Hill, Dr. E. Clifford Beale, Mr. E. W. Roughton, and Dr. Lamb. Treasurer: Mr. H. Cripps Lawrence. Hon. Secretaries: Dr. Cagney and Dr. F. W. Cock. Council: Sir John Williams, Bart., Mr. R. S. Armstrong, Mr. E. Bartlett, Mr. Peyton Beale, Dr. Boxall, Mr. Henry Davis, Mr. George Eastes, Dr. L. Guthrie, Mr. F. W. Hazel, Mr. S. Hurlbutt, Mr. Henry Juler, and Dr. J. E. Squire.

NORTH LONDON MEDICAL AND CHIRURGICAL SOCIETY.

Exhibition of Cases and Specimens.

A MEETING of this society was held on Jan. 9th, Mr. CHARLES KING being in the chair.

Dr. ARTHUR WILSON showed the specimen of a Stomach with an Ulcer which had Perforated and given rise to fatal septic peritonitis. The symptoms had appeared suddenly and were followed by the fatal termination in about thirty-six hours, but not before a diagnosis had been made which was found afterwards to be correct. The question of surgical treatment arose, but on account of the very weak condition of the patient it was decided not to subject her to operation.—In the discussion following this case Mr. MOWER WHITE expressed himself to be in favour of operating in nearly all cases such as this on account of the extremely unfavourable prognosis if the patient is left to the natural course of events. The period of time intervening between the last meal taken by the patient and the nature of the food are circumstances that would exercise much influence over the results of an operation should such a proceeding be decided on.—Mr. MACREADY also spoke on the question of operation, and emphasised the difficulties lying in the way of a correct diagnosis.

Mr. MOWER WHITE and Mr. TRAER HARRIS brought forward the case of a man who had suffered from Carcinoma of the Floor of the Mouth involving the Lower Jaw-bone. The growth was freely removed along with the anterior portion of the lower jaw, and a certain number of enlarged glands in the sub-maxillary space were also removed. Mr. Harris subsequently fitted to the remaining portion of the jaw and the surrounding tissues an apparatus which removed the appearance of deformity and, being provided with teeth as in an ordinary artificial plate, could be used in mastication. The patient seemed to be in good health after the interval of eight months, but Mr. White pointed out the existence of what appeared to be an enlarged gland below the angle of the jaw, which might be caused by the recurrence of the growth in that position, and which was to be promptly treated.

Dr. LINDLEY SCOTT brought forward the case of a man of about sixty-four years of age who had suffered from Chronic Gout for the greater part of his life, and who had developed enormous Concretions of Urate of Soda in relation with the articulations of his hands and feet. One of these lying over the metacarpo-phalangeal joint of the right index finger not only had produced almost complete immobility of that articulation, but was also very inconvenient on account of its situation. This concretion had attained the size of a large walnut, and there were numerous smaller masses both on the hands and feet. Dr. Scott inquired whether it would be possible to remove these masses successfully. Mr. Wadd mentioned that in a case with very similar manifestations coming under his observation, Mr. Clutton had operated and removed the deposits of urate of soda with excellent results, but that the patient he referred to seemed to be in better general health than the case brought forward by Dr. Scott.—Dr. BURNET expressed his opinion as being unfavourable to operation, especially in this case, on account of the enfeebled condition of the patient.

Dr. JAMES GALLOWAY presented two cases of Lupus Erythematosus in Women, showing the results of different modes of treatment. The first case was that of an unmarried woman of middle age who had been treated throughout by local applications of the liquor hydrargyri nitratis acidus, with the result that all the disease had disappeared from the face, and the resulting scar was so superficial that by gaslight it was difficult to distinguish. The condition of the face could be compared with the scalp, where the disease was still present, although in a very chronic form. A small spot had reappeared on the face after years of quiescence which it was proposed to treat in the same manner. The second case, in a young married woman, had been of much more recent

development, and on account of pregnancy she had been treated by the internal administration of ichthyol. The result up to the present time had been exceedingly satisfactory, for the disease, which had previously to treatment spread over large areas on both sides of the face, had almost completely disappeared, and could be seen only in a limited area over each malar bone. Dr. Galloway showed a third case of Chronic Persistent Œdema of both Lower Eyelids in a young woman twenty-two years of age, the sequela of an attack of facial erysipelas eight years previously.

ÆSCULAPIAN SOCIETY OF LONDON.

Exhibition of Cases and Specimens and an Apparatus for the Rapid Measurement of Refraction.

A MEETING of this society was held on Jan. 17th, Dr. OSTLERE, Vice-President, being in the chair.

Dr. J. R. T. CONNER showed a girl aged sixteen years, the subject of Bazin's Disease on both Calves, ulceration having taken place on the left. This was certainly not syphilitic, though of atonic type. There was also atrophy of the right deltoid biceps and triceps, and in a less degree of the right leg, due probably to an attack of infantile paralysis when two years old.

Mr. S. PAGET showed the following cases:—1. A boy with Tuberculous Disease in the Bones of both Feet, requiring Syme's amputation of the left, amputation of the fourth right toe, and scraping of diseased bone at other points. He had now recovered. 2. Large Perinephric Abscess in a boy, the result of being run over. Slight initial hæmaturia indicated some renal injury. Recovery was perfect. 3 and 4. Two boys who had also been run over. No rib injury could be clearly made out, but signs of pneumothorax appeared. Both recovered satisfactorily.—Mr. PAGET also showed—(1) a Cyst removed from within the lower jaw of a child and containing a Molar Tooth and a Papillomatous Growth; and (2) a specimen of Œsophageal Epithelioma. There was some dilatation at the seat of the growth, little thickening, and no true occlusion. A sinus passed upward and backward from the gullet to a fistulous opening in the trachea. Death resulted from dyspnœa, probably due to passage of food through this opening.

Mr. N. DAVIDSON showed an apparatus for the Rapid Measurement of Refraction. This consisted of a revolving circular frame, containing a series of spherical plus and minus lenses which could be brought in turn before the eye. By means of a special arrangement of revolving types (also shown) it was possible to estimate degrees of astigmatism by means of the spherical lenses alone.

NORTH-WEST LONDON CLINICAL SOCIETY.

Exhibition of Cases and Specimens.

A CLINICAL meeting of this society was held on Jan. 15th, Dr. WM. BOULTING being in the chair.

Dr. CAGNEY showed a case of Torticollis, in which for thirteen years the spasm had been limited to the arm, and which had consequently been mistaken for writers' cramp.—Mr. MAYO COLLIER, Dr. GUTHRIE, and Dr. CAMPBELL discussed the case.

Dr. GUTHRIE showed an infant aged nine weeks in whom the flat muscles of the abdomen externally to the recti were congenitally absent. He ascribed the condition to ascites in utero.—Mr. MAYO COLLIER and Dr. CAMPBELL dissented from this view of the causation.

Mr. JACKSON CLARKE exhibited a man upon whom he had performed Bassini's operation for the radical cure of hernia.

Dr. CAMERON showed a case of Optic Atrophy caused by a recent attack of cerebro-spinal meningitis which was described in detail.—Dr. CAGNEY, Dr. CAMPBELL, Mr. JACKSON CLARKE, Dr. GUTHRIE, Dr. ALEXANDER MORISON, and Dr. LONG took part in the discussion.

Dr. CAMPBELL showed the heart from a case of Extreme Mitral Obstruction, and pointed out the mechanical advantage of the funnel-shaped orifice. He also showed the granular kidneys of a girl aged seventeen years who had died of that disease.—Dr. GUTHRIE spoke of having observed the condition in young children.

Mr. HOSFORD showed a case of Congenital Ichthyosis and microscopical specimens.

LIVERPOOL MEDICAL INSTITUTION.

Traumatic Epilepsy.—Rapid Gangrene of a Hernial Sac.—Leucocythæmia.—Exhibition of Cases.

A MEETING of this society was held on Jan. 16th, Dr. RICHARD CATON, President, being in the chair.

Mr. NEWBOLT related a case of Traumatic Epilepsy. The patient had a severe injury to the right side of the head in 1888. He was trephined at that time in America, bone and brain substance being removed. He remained well for two years, but had hemianopia. At the end of this time epileptic fits occurred at intervals varying from two weeks to two months and a half; the fits invariably started in the left wrist. On admission there was a deep depression on the right side of the skull three-quarters of an inch deep, two inches from above downwards, and an inch and a half from before backwards. The centre of the depression was two inches above the right ear. There was pulsation at the bottom of the depression. Mr. Newbolt trephined over the wrist centre, and removed a sharp spicule of bone. Since the operation (one year and ten months) the man had three fits.—Mr. R. BICKERSTETH, Mr. SHEARS, and the PRESIDENT made remarks.

Mr. ROBERT JONES related a case of Rapid Gangrene of a Hernial Sac. The patient, a man aged forty-eight years, had been subject to a reducible hernia for nine months and had worn a truss. One day after a full meal he sneezed, and suffered great agony, having ruptured the bowel into the sac. An operation was performed four hours afterwards, the sac was exposed and was perfectly black, though it partially retained its consistence and its shining peritoneal appearance. The bowel was congested and a tear three-quarters of an inch long was found in it. The gangrene was strictly limited to the sac. There was no strangulation of the sac or contents.

Dr. BUCHANAN read a paper on Leucocythæmia, giving a brief *résumé* of the etiology and clinical features of the disease and discussing the histology of the normal blood, particularly in relation to the leucocytes. As a basis for comparison in diseased conditions the classification of the wandering cells laid down by Kanthack and Hardy was adopted. Comparing blood in six cases of leukæmia examined by the most approved methods two forms may be recognised:—1. That characterised by great leucocytosis and the presence of certain cellular elements not usually found in normal blood. (*a*) Large atypical eosinophile cells with coarse granules in extraordinary numbers; (*b*) large uninuclear cells, "myelocytes," similar to normal marrow cells; (*c*) transitional forms from (*b*) through (*a*) to the ordinary finely granular eosinophile cell, the latter variably diminished or increased; (*d*) forms of (*c*) devoid of granules; (*e*) lymphocytes and small basophile cells; and (*f*) many nucleated red blood corpuscles of the megaloblastic and normoblastic type. 2. Lymphatic form: great leucocytosis with (*a*) small lymphocytes in great abundance; (*b*) large hyaline cells increased; (*c*) transitional forms from (*a*) through (*b*) to large atypical basophile cells; (*d*) nucleated red blood-corpuscles increased; (*e*) eosinophile cells, coarse and fine, diminished; and (*f*) myelocytes. Mixed types of either class may exist. The use of colour preparations of the blood is necessary to distinguish either form. The paper was illustrated by lantern-slides.—Dr. GLYNN remarked upon the rarity of the lymphatic form of leukæmia, and considered it curious that it should be so, since if the disease originated in some form of irritation the lymph glands seemed more likely to be exposed to such irritation than the spleen or bone marrow. He had examined the blood in several cases of pneumonia for leucocytosis, but was not at present satisfied as to the value of this as an aid to prognosis in such cases.—Dr. ABRAM said Virchow showed that the thymus gland was persistent in leukæmia, and that this explained the presence of a mediastinal growth in leukæmia. He thought the distinction of feebly and strongly oxyphile granules was useful, as the former were mainly increased in leucocytosis, and the latter in leukæmia. Leukæmic blood is deficient in alkali and contains much lecithin. He said there is an excess of uric acid in the urine of leukæmic patients which agrees with the view that uric acid is derived from breaking down white corpuscles.—Professor SHERRINGTON and Professor BOYCE also took part in the discussion

Mr. R. W. MURRAY showed two children on whom he had

operated for Extroversion of the Bladder. He had used lateral skin flaps so arranged that their raw surfaces were next the mucous membrane of the bladder. He greatly preferred this method to the more usual plan, as it was much more simple and there was no fear of phosphatic deposit, which was a frequent cause of annoyance when the reversed skin flap was employed, owing to the growth of hair in this flap.—Mr. RUSHTON PARKER remarked that he had operated successfully in three cases of boys by a method devised by Mr. Greig Smith, the patients after operation sitting in a hip bath of warm boracic lotion. In each case there was union by first intention. In a fourth the flaps sloughed.—Mr. ARTHUR WILSON suggested that for those in the wealthier classes a skilful surgical mechanism was as useful as the surgeon. He thought that the operation described by Mr. Murray was a good one, although in the only case in which he had performed it the result was not entirely satisfactory.—Dr. IMLACH asked whether it was better to operate directly after birth in cases of extroversion of the bladder or whether the child should wait until two years old.

Mr. ARTHUR WILSON showed a specimen from a case of Secondary Sarcoma of the Lungs; the primary growth was in the internal condyle of the femur.

BRADFORD MEDICO-CHIRURGICAL SOCIETY.

Exhibition of Cases and Specimens.—Fibroid Tumour of the Uterus.—Villous Gronth of the Bladder.

AN ordinary meeting of this society was held on Jan. 14th, Dr. A. BRONNER, President, being in the chair.

Microscopical specimens were shown by Dr. MAJOR and Dr. CHAPMAN.

Mr. HORROCKS showed a man from whose foot he had Removed the Astragalus twelve months ago. The patient was now able to flex and extend the ankle, and the arch of the foot was good. He was first seen when sixteen years of age, the ankle having been swollen for two years. A transverse dorsal incision was employed, and, in addition to the astragalus, the cartilages over the scaphoid, tibia, and fibula were removed. The wound was packed with sublimate gauze, which was removed on the second day. A month later the patient was sent out of hospital with plaster on the leg. The tendons divided by the transverse incision were not sutured, the ends becoming adherent to the scar.

Dr. CHAPMAN showed a specimen of Tuberculous Kidney taken from a severe case of Lupus. The patient was a woman aged twenty-two years who had suffered from extensive lupus of the face, arms, and body. Scraping under an anæsthetic had several times been done. Slight hæmaturia was present during the last year of life. Post mortem the left kidney was full of cheesy material and there were scattered tubercles in the lungs.—The case was discussed by Dr. HINE, Dr. HONEYBURNE, Mr. HORROCKS, Mr. CAMPBELL, Mr. APPLEYARD, Mr. WILMOT, and Dr. H. BRONNER.—Dr. CHAPMAN replied.

Dr. SHIACH showed for Dr. RABAGLIATI a Fibroid Tumour of the Uterus which had been recently removed by Abdominal Hysterectomy. The patient died on the third day.

Dr. SHIACH showed for Mr. ROBERTS a large Pyosalpinx which had recently been removed, the patient making a good recovery.

Mr. CAMPBELL showed the Lungs from a case of Acute Tuberculosis.

Mr. APPLEYARD read notes on a case in which he had removed a Fibroid Tumour of the Uterus, the patient making an excellent recovery. The tumour weighed 14 lb. 11 oz.—Mr. APPLEYARD also read notes on a case of Villous Growth of the Bladder. The patient was a young man aged nineteen years who had occasional attacks of hæmaturia during three years. Six months ago he had frequency of micturition, albuminuria, incontinence of urine at night, and occasional dribbling during the day. The bladder was sounded under an anæsthetic, and afterwards a small papillary growth was found in the urine. On Dec. 5th, 1895, supra-pubic cystotomy was performed, and a small pedunculated growth was found, ligatured, and removed. The wound was drained and the patient made an excellent recovery.—Mr. HORROCKS, Dr. KITCHIN, and Dr. HONEYBURNE discussed the case.

NORTHUMBERLAND AND DURHAM MEDICAL SOCIETY.

Exhibition of Cases and Specimens.

A MEETING of this society was held in the Royal Infirmary, Newcastle, on Jan. 9th, Dr. J. DRUMMOND, President, being in the chair.

Dr. J. DRUMMOND showed a patient with Supernumerary Nipple. In addition to the ordinary breast there was a well-marked nipple in the seventh costal interspace on either side.

Dr. LIMONT showed a case of Keloid in a young man who squeezed an acne spot on his chest five years ago. A red spot developed and after remaining much the same for three years it began to enlarge, until now there is on the breast a large, hard, raised pink patch free from vessels and constantly itching.—Dr. LIMONT also showed a boy with a Keloid Growth in the Scar left after Excision of Tuberculous Glands.

Mr. PAGE showed a man forty-three years of age who has recovered from an extensive Fracture of the Pelvis, with Rupture of the Bladder, caused by a weight of two tons falling upon him. The patient passed urine normally on the twenty-ninth day and made a good recovery.—Mr. PAGE also showed a man with a large Indentation in his Skull the result of a Compound Depressed Fracture caused by a fall of metal twenty years ago. There was an entire absence of disagreeable symptoms.

Dr. OLIVER showed a patient whose entire Uterus had been removed on account of Excessive Hæmorrhage. On section the enlarged fundus was found to be the seat of a growth which microscopically is an adeno-sarcoma.—Dr. OLIVER also showed a Kidney from a case of Hydronephrosis occurring in a man whose illness began with a strain, followed by pain and vomiting. Twelve months later a large swelling appeared in his right abdomen and blood in his urine. The cyst being tapped, the fluid removed contained only broken-down blood cells, without any urea or any of the reactions of pancreatic fluid. The cyst rapidly refilled, and on opening the abdomen the tumour was found to be a cystic kidney and was excised. The fluid now contained urea. There was no calculus.—Dr. OLIVER also showed a case of Hysterical Hemiplegia, the patient being a girl who fell down a month ago in consequence of an attack of vertigo. After the fall she developed paralysis of the right leg, arm, and face with anæsthesia of the face. Anæsthesia, however, is rare in functional paralysis.

Mr. MARTIN showed a specimen of Spina Bifida as large as a child's head removed from the Cervical Region of a child five weeks old. It was incised, when fifty-two ounces of fluid escaped; the pedicle occupying the interval opposite the fourth and fifth laminæ was ligatured. Five weeks after the operation signs of hydrocephalus appeared, and from this cause the child died six months later.

Dr. MURRAY showed a Spina Bifida from a Child six weeks old who died from bronchitis. The central canal of the cord, dilated to the size of a goose quill, entered into the sac.—Dr. MURRAY also showed a specimen from a case which died after the injection of Morton's fluid. It was an example of Meningomyelocele.

Dr. HUME showed a Large Cyst extracted from the Thyroid Gland. It had caused pressure symptoms and great discomfort. The operation was almost bloodless, for as soon as the blue venous-looking wall of the cyst was exposed the operation was completed by the finger. A good recovery followed.—Dr. HUME also showed a large Multinodular Fibroid Uterus removed by total abdominal hysterectomy in October, 1895. The abdominal wound suppurated and had to be dressed daily. Five weeks after the operation a dose of castor oil was given and was followed by signs of intestinal obstruction. The suppurating abdominal wound was first excised by an elliptical incision and the abdomen was then reopened. The obstruction was due to the passage of coils of intestine under a band formed by the adhesion of a loop of bowel to the abdominal parietes. Recovery after the second operation was uninterrupted.—Dr. HUME also showed another Fibroid Tumour removed successfully by total abdominal hysterectomy.

Dr. MURPHY showed a Calculus removed from the Left Ureter, prolapsed through the urethra, in a woman aged twenty years. A mass resembling a polypus, but consisting of the whole trigone of the bladder, protruded from the

vulva. The probable explanation was that the bladder had been protruded by violent expulsive efforts set up by urine collecting behind the stone.

Dr. GEORGE MURRAY showed a fresh specimen of Actinomycosis in the jaw of a cow, and Microscopic Preparations of the Ray Fungus. There was no suppuration and the disease was limited to the jaw.

MIDLAND MEDICAL SOCIETY.

Exhibition of Cases and Specimens.—Enlarged Axillary Glands.—A Solid Fibroid Tumour of the Ovary.—Nocturnal Enuresis.

THE fourth ordinary meeting of this society was held on Jan. 15th, Dr. UNDERHILL, the President, being in the chair

Mr. LUKE FREER showed two cases of Relapsed Congenital Talipes Equino-varus successfully treated by Tenotomy, Wrenching, and true Orthopædic Measures. Each patient had been operated upon several times in infancy by tenotomy. There were extensive adhesions, requiring considerable force in each instance. One case was under treatment five months with two wrenchings, and the other seven months with three wrenchings. Considerable leg and hip rotation in each was overcome by daily manipulations simultaneous with those of the feet. In most cases he wrenched with his hands, but in severe cases like these he used Thomas's wrench. He simply used a Scarpa's shoe without elaborate mechanism; the cost of treatment in each case, as an out-patient, was under a sovereign, the time occupied in obtaining a useful limb was not longer than that necessary to make a "tarsectomy stump," and the only argument that could be used against this treatment was the personal and persistent manipulative labour involved, without which success was impossible.

Dr. KAUFFMANN showed a female patient aged thirty-one years who exhibited the early symptoms of Tabes Dorsalis and in whom there was a condition of Gastro-intestinal Catarrh and Constipation. In the belief that the absorption of deleterious substances from the digestive canal might be the cause of the symptoms of nerve-degeneration, the intestinal condition alone was treated, and the girdle sensation and lightning pains vanished, the Argyll-Robertson phenomenon and the absence of knee-jerks persisting. Dr. Kauffmann regarded the case with some hopefulness as to the disease not advancing if the gastro-intestinal tract could be kept in good order.

Mr. HASLAM read notes of a patient aged seventy years who was admitted under his care in July with a Lump in her Right Breast of eighteen months' duration, associated with Enlarged Axillary Glands and having all the characters of a Hard Carcinoma. This was treated by the injection of erysipelas serum, fourteen injections being given in a period of seven weeks in quantities varying from 1 c.c. to 10 c.c. No constitutional disturbance was produced and only comparatively slight local swelling and redness, just enough to mask the previously well-defined outline of the growth. At the time of her leaving the hospital, at the end of September, the tumour was distinctly smaller, and by Dec. 6th it had entirely disappeared.

Mr. HEATON showed the Intestines from a case of Resection of the Bowel for Gangrene in a Strangulated Hernia. The patient was a woman aged thirty-three years, who had suffered for six days from an unrelieved strangulated femoral hernia. Resection of the damaged intestine was performed, and an intestinal anastomosis effected by means of a Murphy's button. The patient died from collapse some twenty-one hours after the operation. The resected portion of intestine was three inches long, and showed in its centre a large ragged hole, involving more than half the circumference of the gut, where it had been cut through by the sharp edge of Gimbernat's ligament. The coil of intestine in which the anastomosis had been performed was also shown with the button *in situ*. The resected ends were firmly united by plastic inflammatory matter, making it somewhat difficult to see where incision had been effected. The new coil was quite water-tight and bore the pressure of two feet of water without leakage.

Dr. PURSLOW showed a Solid Fibroid Tumour of the Ovary weighing two and a half pounds, which he had removed by abdominal section from a single woman aged twenty-six years. There was a considerable amount of free ascitic fluid, but no adhesions had formed. The wound healed by first intention, and the patient left the hospital on the twenty-fourth day after operation.

Dr. CARTER read a paper on Nocturnal Enuresis. He classified the cases of this complaint, when not due to deformity or to gross disease of the nervous system, as depending upon—(1) abdominal peripheral irritation; (2) abnormal irritability of the spinal micturition centre; and (3) abnormal cerebral impressions reacting on the micturition centre. Stress was laid upon the necessity of arriving at an accurate knowledge of the cause in each case to make treatment successful. Dr. Carter laid special emphasis upon the gouty dyscrasia and other conditions of faulty metabolism as producing enuresis. Among specific points of treatment he mentioned as successful the application of a narrow blister on each side of the spine.

EDINBURGH OBSTETRICAL SOCIETY.

Pan-hysterectomy.—Perforating Hydatid Mole.—Uterine Curettage.—Fatal Infantile Jaundice.—Exhibition of Specimens.

A MEETING of this society was held on Jan. 8th, Dr. BERRY HART, in the absence of the President, being in the chair.

Dr. CHRISTOPHER MARTIN (Birmingham) read a paper on Hysterectomy by the Intra-peritoneal Method ("Pan-hysterectomy"), in which the whole uterus, including the cervix, is removed by abdominal section. He referred to the surgeons who had performed it in Germany and America, and also to Jessett and Smyly, who were the first to perform it in this country. He had performed it eight times: six times for myoma, once for rupture of the pregnant uterus, and once in a case of occluded cervix with hæmatometra and pyosalpinx. All his cases had recovered. The patient is carefully prepared, and the skin and vagina are cleansed with antiseptic precautions. All instruments, silk ligatures, gauze sponges, and the water to be used are sterilised. An incision long enough to permit of the easy delivery of the tumour is made, and on its extraction sponges are pushed behind to protect the abdominal viscera. The relations of the tumour to the uterus, the ureters, and the bladder, the position of the ovarian and uterine arteries, &c., are ascertained and a double ligature is passed by a Galabin's pedicle needle through the broad ligament at a spot free from veins about the junction of the middle and upper thirds and midway between the uterus and pelvic wall. By pulling one of the two ligatures forcibly inwards and the other outwards a transverse slit is torn about one inch in length, or it can be made by inserting and expanding a pair of forceps inserted into the ligature opening. The ligatures are tied and the intervening tissue cut through. The ovaries and tubes are removed if possible. The middle third of the broad ligament is similarly treated and the bladder detached from the anterior surface of the uterus until the vagina is reached. This is now opened close to the anterior lip of the cervix. The posterior fornix is next opened. The uterus is now only attached by the lower third of the broad ligaments containing the uterine artery. The tying of these arteries is the most difficult part of the whole operation; usually there is not room for a double ligature, and the ureters must be carefully avoided. After securing the ligature the uterus and its growth are free to be lifted out of the pelvis. Bleeding points should be searched for and secured, the pelvis sponged clear of clot, and all the ligatures cut short except those of the uterine arteries, which are to be drawn into the vagina. Gauze is passed into the vagina and the bladder and other parts allowed to fall over it, but no attempt is made to draw the parts together by sutures. The abdominal wound is closed with silkworm gut sutures. The gauze in the vagina acts as a drain, and is removed on the fifth or sixth day. Dr. Martin does not use the Trendelenburg posture. The uterine ligatures usually separate during the third week and the patient leaves the hospital during the fourth week. There is little shock if the patient is kept warm and the intestines not exposed or handled during the operation. Pan-hysterectomy is a difficult and tedious operation; its dangers consist in chill and shock, slipping of the ligatures with hæmorrhage, damage to bladder or ureters, adhesion of the bowel to the raw surfaces, infection through the vagina, and weakening of the pelvic roof. The last is purely theoretical, and with care other objections are largely

obviated. In estimating the value of this operation it requires to be compared with the five other procedures employed for a similar condition: 1. Removal of the uterine appendages is safe in small myomata, but unsatisfactory in large ones. Dr. Martin had removed the appendages in twenty cases for small myomata with one death, and in eight cases for large ones with two deaths. In 90 per cent. of those who recover a cure results, menstruation ceases, and the tumour shrinks. In the other 10 per cent. the patient is not cured, the tumour grows, and the symptoms increase. If a low mortality could be assured, small myomata should be treated by vaginal hysterectomy and large ones by abdominal pan-hysterectomy. 2. Hysterectomy, with extra-peritoneal treatment of the pedicle (clamp cases), has a high mortality—from 15 to 30 per cent. Those who recover pass through the dangers of septicæmia, peritonitis, secondary hæmorrhage from the stump, and ventral hernia afterwards. Sometimes it is impossible to get a safe pedicle if the myoma invades the broad ligament or cervix. Recovery is prolonged. In all these respects pan-hysterectomy is superior to the clamp operation. 3. Hysterectomy with intra-peritoneal treatment of the pedicle is attended with such great risks of hæmorrhage, suppuration of the stump, peritonitis, and septicæmia that it is even more dangerous than the clamp operation. 4. Vaginal hysterectomy for small myomata compares favourably as regards mortality with removal of the appendages, and of course it is an absolute cure. It is not advisable when the tumour is larger than the fœtal head. 5. Enucleation per vaginam is usually a risky operation except for small submucous tumours to which access is easy. It is justifiable in cases of large sloughing submucous myomata, but in other cases pan-hysterectomy seems to be a sounder and safer operation. The advantages of pan-hysterectomy are that it absolutely cures the patient and has a lower mortality than either the clamp operation, enucleation, or the intra-peritoneal method of treating the pedicle. It is attended by remarkably little shock, and convalescence is easy and uneventful. The wound heals by first intention, the patient is up in three weeks, and there is very slight risk of a subsequent ventral hernia.—Dr. MARTIN also described the removal of a Uterus twelve hours after the Expulsion of a Perforating Hydatid Mole. One of the portions had grown under the peritoneum, and after the uterus was emptied bleeding into the peritoneum occurred. Pan-hysterectomy was performed, and though the patient was seriously collapsed she made a good recovery.—Dr. BERRY HART said that the case of perforating hydatid mole with intra-peritoneal hæmorrhage was the first case recorded to have been operated on for this condition.—Dr. N. T. BREWIS believed that in some cases the clamp operation was the best. In only one case had he seen a bad ventral hernia. The difficulty in pan-hysterectomy was the ligature of the uterine arteries. He found the Trendelenburg position helpful. If possible, catheterisation of the ureters should be practised to avoid their inclusion in the ligature.—Dr. MARTIN, in reply, stated that seven or eight cases of perforating hydatid mole had been recorded, but all had been diagnosed post mortem. This was the only one operated on. The clamp operation might be the more rapid method if the patient were feeble. He did not adopt the Trendelenburg position as the veins might not bleed and would not then be secured, and blood flowing from the wound would gravitate towards the diaphragmatic part of the abdomen. If the uterus and tumour were well pulled up by an assistant the same effect was obtained as by the Trendelenburg position.

Dr. J. W. BALLANTYNE read a paper on Uterine Curettage: its History, Indications, and Technique. He gave the results of an extensive research into the literature of various countries on this subject, tabulated its indications, and made reference to his own cases.

Dr. J. A. C. KYNOCH described a case of Infantile Jaundice from Congenital Narrowing of the Common Bile-duct. The child showed a yellow skin from the first day after birth, and survived for three months and a half. The liver weighed 8 oz.

Dr. BREWIS showed Three Papillary Tumours of the Ovary and an Ovarian Tumour removed after Rupture of the Pedicle.

Dr. KYNOCH showed an Embryo, 3 mm. in length, from a patient who aborted after nine weeks' amenorrhœa; it had probably become arrested in its growth at fourteen days.

Dr. C. MARTIN showed specimens of Uteri removed by Hysterectomy. One was for a myoma which continued to grow after the menopause, and eventually weighed 15½ lb. Another was from a patient aged twenty-eight years whose appendages had been removed, with the result that the bleeding ceased for three or four months, but then returned, and pan-hysterectomy had to be performed. Another of the specimens was a Cystic Uterus.

Dr. BUIST (Dundee) showed a Fœtus Compressus where the waters of one sac had been expelled six days previously to abortion, and thus the compressed condition had been produced in that time.

MEDICO-CHIRURGICAL SOCIETY OF EDINBURGH.

Exhibition of Cases and Specimens.—The Action of the Liver on Fats.

THE fourth meeting of this society was held on Jan. 15th, Dr. ARGYLL ROBERTSON being in the chair.

Mr. CAIRD showed a boy on whom he had operated for Rupture of the Urethra. The rupture had taken place through a fall. On examination the perineum was found to be bruised. There was considerable effusion of blood, but no evidence of extravasation of urine. An instrument could not be passed into the bladder. Mr. Caird cut down on the urethra, but the ruptured portion could not be discovered. The bladder was opened suprapubically and a catheter passed from the bladder down the urethra. The ends of the urethra were stitched and a soft rubber catheter left *in situ*. The patient made a good recovery.

Dr. W. ELDER showed the Brain from a case of Aphasia of seventeen years' standing. The aphasia had been entirely sensory. Seventeen years ago the patient had a thrombosis. The paralysis involved the leg and arm and face; aphasia was also present. The paralysis passed off in nine months, but mental symptoms supervened. The patient ultimately died in a congestive attack. During life the symptoms were limited to the sensory side of the speech centre. She could not converse, her vocabulary being very small. Post mortem the first and second tempero-sphenoidal and the supra-marginal lobes were found to be atrophied.—Dr. ELDER also showed a specimen from a case of old-standing Stricture of the Urethra with Dilatation of the Ureters. The patient had died from uræmia.

Dr. BOYD showed a specimen of Aneurysm of the Aorta with Rupture into a Bronchus. The patient, a man aged fifty years, had died very suddenly when taking a bath. He had gone to the bath-room apparently in perfect health. For fifteen years before the time of his death he had had no symptoms of illness. On opening the chest the two layers of the left pleura were found firmly adherent. There was an enormous aneurysmal dilatation of the first part of the aorta. On the descending arch of the aorta there was a saccular aneurysm which had perforated the two layers of the pleura and passed into the lung. In this sac there was a small communication with a bronchus. There was slight incompetence of the aortic valves, but no marked hypertrophy of the left ventricle. A remarkable point in the case was the entire absence of any symptoms. No history of syphilis could be obtained.

Dr. DAVID GREIG showed a cast of Lupus Verrucosus.

Dr. NOEL PATON read a paper on the Action of the Liver on Fats. He pointed out that while the liver protected the organism against the invasion of the circulation by too large an amount of proteid and carbohydrate, its influence on fats was still doubtful. Much of the difficulty lay in the fact that the chemical method of procedure in this branch of research was so very tedious. The ether extract had formerly been taken as an indication of the amount of fat. Munk, however, had shown that it was necessary to estimate the fatty acids to get correct information. The fatty acids must be isolated and no conclusions drawn from the ether extract. In the liver there was present a higher proportion of the solid acids, and the liver fats had a higher melting point than those of the rest of the body. The chief fatty acid in the liver was lecithin, a body in which one of the hydrogen molecules was replaced by phosphoric acid combined with cholin. Ten per cent. of the solids of the liver were composed of lecithin, and one-half of the fatty acids

were in this combination. The question arose, What was the meaning of the large amount of lecithin in the liver? In the egg the phosphorus, at first combined as lecithin, was afterwards changed into the phosphorus of bone and nuclein. He thought that the phosphorus containing lecithin in the liver was the first stage in the building up of the nuclein compounds of the body. If there was an increase of fats in the liver, was it due to increased accumulation or increased production? Even after starvation the fatty acids were found to remain constant, while the glycogen disappeared. This was possibly a conservative precaution, the fatty acids combining with the phosphorus to preserve it in order that it might take part in the building up of the nuclein compounds of the body. Again, the question arose, Was the liver a storage place for the fats of the food? To determine this some kittens were fed on cream. The melting point of the fats of cream was lower than the melting point of the fats of the liver. It was found that the fats of cream were stored in the liver, the fats being increased and the melting point lowered. It took from sixty to seventy hours for this alteration to disappear. The influence of starchy foods on the liver fats was next investigated. No relation was found between glycogen and fats. From experiment it was found that on a diet rich in carbohydrates there were more fats in the liver than on a diet poor in carbohydrates. Experiment further showed that as the glycogen disappeared the fatty acids and fats increased markedly. This, however, was not proof that the fats were formed from carbohydrates; the fats might have been brought from the rest of the body. The fats of the body generally had a low melting point, and if a transport of fat had taken place a fall in the melting point of the fats as the glycogen disappeared would be expected. There was, however, no change in the melting point of the fats, and the blood serum did not become milky, as would have been expected had a transference been taking place. Were the proteids a source of fats? It was almost universally taught that proteids were a source of fats, but Pflüger had recently maintained that there was not sufficient evidence of the conversion of proteids into fat. His (Dr. Paton's) experiments supported Pflüger's contention that there was no conversion of proteids into fats. Numerous tables were shown illustrating the experiments from which Dr. Paton's conclusions were drawn.—Dr. GIBSON, Dr. DUNLOP, Dr. GULLAND, Dr. GILLESPIE, and Dr. STOCKMAN took part in the discussion which followed.

Dr. LEITH read a paper on an Inquiry into the Physiology of the Action of Thermal Saline Baths and Resistance Exercises in Chronic Heart Disease (the Bad Nauheim and Schott System), in a discussion upon which Dr. GEORGE W. BALFOUR, Dr. GIBSON, and Dr. JAMES RITCHIE took part.

Reviews and Notices of Books.

Archives de Physiologie. Fondées par M. BROWN-SÉQUARD; Publiées par MM. BOUCHARD, CHAUVEAU, et MAREY. Cinquième Série. Tome VIII., No. 1. Janvier, 1896.

THIS part contains no less than twenty-five articles, of which the following are the more important:—1. The Organs of the Neck derived from the Epithelium of the Branchial Clefts in the Anguis Fragilis, by M. A. Prenant of Nancy. 2. Researches on Heteroplastic Osseous Grafts, by M. A. Mossé of Toulouse (with a plate), in which the author shows that such grafts do live, and enters into details of the mode in which the nutrition of the graft is accomplished. 3. Lac et Laccase: a contribution to our knowledge of diastatic oxidations, by M. G. Bertrand. 4. General Considerations on Calorimetry by means of Baths, by J. Lefèvre. This is an essay on the homogeneity of temperature and on the cooling of large quantities of fluid. 5. On the Coagulation of the Blood and on the Salts of Lime, by M. Maurice Arthus. This is an experimental refutation of the objections of Alexander Schmidt. 6. A Study of the Interferences that can be obtained in the Faradaic Unipolar Excitation of Motor Nerves, by Professor Aug. Charpentier. 7. On the Persistence of Excitability in the Peripheric Extremity of a Nerve after Section, especially in reference to the Vagus divided in the Neck, by M. S. Arloing. 8. Additional Facts Bearing on the Subject of Unipolar Faradic Excitation, by Professor Aug. Charpentier. 9. Physiological Researches on Acetylene, by M. Gréhant. 10. On the Molecular Concentration of the Liquids of the Organism, by M. J. Winter of Paris. 11. Solubility and Activity of the Soluble Ferments in Alcoholic Fluids, by M. A. Dastre. 12. On a Case of Retrograde Degeneration of the Pyramidal Fibres of the Cord in the Anterior and Lateral Columns, by M. J. Déjérine and M. Sottas, with nine woodcuts. 13. On Resorption from, and by, the Kidney, by M. Ad. Huber, showing that the resorption of saline solutions will take place at a pressure much below that of the normal urine at this point. 14. On the Effects of Suppression of the Function of the Liver on Glycæmia in Normal and Diabetic Animals, by M. M Kaufmann, showing that such suppression is followed by a great fall in the proportion of sugar in the blood. 15. On the Relations between the Testis and the Prostate, by M. Félix Legueu. 16. On the Influence of the Nervous System on the Property possessed by the Intravenous Injection of Peptone in suspending the Coagulation of the Blood, by M. Ch. Contejean. 17. On some Disturbances of the Cardiac Rhythm caused by Wounds of the Heart, by MM. Rodet and Nicolas. The effects of pricking the heart at various points with a long sharp needle are shown to be comparatively slight. 18 and 19. On Reflex Pulmonary Vaso-constriction, by M. Ch.-A. François Franck. 20. Some Observations on Aborted Systoles of the Heart, by M. Rodet. 21. On the Variations in Volume of the Extremities in relation to the Respiratory Movements, by MM. L. Hallion and Ch. Comte. 22. On the Hereditary Action and Teratogenous Effect of Microbic Products, by MM. A. Charrin and E. Gley. 23. On the Teratogenous and Toxic Powers of Acetone, by M. Ch. Féré. 24. The Toxines and Growth, by MM. Charrin and Nobécourt. 25. On the Comparative Action of the Salts of Cadmium and Zinc, by MM. J. Athanasiu and P. Langlois.

A System of Surgery. Edited by FREDERIC S. DENNIS, M.D., Professor of Surgery, Bellevue Hospital Medical College; assisted by JOHN S. BILLINGS, M.D., LL.D., D.C.L., Deputy Surgeon General, U.S.A. Vol. I. Edinburgh and London: Young J. Pentland. 1895. pp. 880. $6.

IN so far as regards good paper, clear type, and careful printing, it is certain that this volume of American surgery may well claim to be successful; and the contents do not fall short of the outward appearance. In any treatise which is the work of many authors it must happen that the contributions vary somewhat in excellence, and views more or less conflicting are liable to be expressed, but we have been unable to detect any discrepancies of any moment. The authors are all men who from their positions as teachers of surgery, either clinically or systematically, can claim to be able to speak with authority on the subjects which they have undertaken, and the names of many of them are well known in this country.

The present volume, which is the first of four, commences with a fairly elaborate account of the History of Surgery by Dr. Billings. The earlier history is treated somewhat briefly, though it goes as far back as the Ebers Papyrus; the later history is much fuller and includes notices of the work of most surgeons of any note, British surgeons receiving a very fair share of attention, and the article concludes with a useful and fairly complete list of the journals devoted to surgery. Dr. Councilman of Harvard University has undertaken the article on General Surgical Pathology, including inflammation, and the opinions expressed are those generally received. Dr. Welch of Johns Hopkins University treats of the General Bacteriology of Surgical Affections. The

discussion on Immunity is hardly so full as we might have expected from the advances made in the study of this subject in the last few years. Some interesting statistics are quoted relating to the numbers and varieties of micro-organisms found in a large number of post-mortem cases at the Johns Hopkins Hospital, and these are instructively compared with the bacteria found in a number of surgical cases. All the micro-organisms of surgical importance are described and many figured. Dr. Nancrede of the University of Michigan deals with the Clinical Aspects of Inflammation and its Results, describing the symptoms, diagnosis, and treatment. He includes in his article an account of burns and wounds. Septicæmia, Pyæmia, and Poisoned Wounds are adequately described by Dr. Carmalt of Yale University. Dr. Collins Warren of Harvard University takes Traumatic Fever, Erysipelas, and Tetanus. He is of opinion that there is a variety of traumatic fever which is in no way due to sepsis, but is the result of absorption of fibrin ferment; if this be so it should vary in relation to the amount of blood-clot in the wound, but we are not aware that this has ever been shown to be the case. A short account of Hydrophobia follows by Dr. Hermann Biggs of Bellevue Hospital Medical College. Dr. Conner of the Medical College of Ohio, Cincinnati, has written an excellent article on Gunshot Wounds, and in it he describes Girdner's telephonic probe for the detection of bullets, an instrument but little known in this country. The editor of the work, Dr. Dennis, has himself undertaken the subject of Fractures and Dislocations. This is the most important article in the volume and is very fully illustrated. Dr. Wood of Philadelphia writes on Anæsthesia and in speaking of the choice of an anæsthetic says: "The surgeon who desires to produce a prolonged narcosis should prefer ether to chloroform, unless there be in the peculiarities of the individual case positive reasons to the contrary." In this the author expresses what is probably the opinion of the majority of surgeons in England. The importance of Antisepsis and Asepsis is dwelt upon in an article by Dr. Gerster of the New York Polyclinic, and the technique is fairly described. Dr. Stephen Smith devotes 140 pages to Operative Surgery, including in his subject the Prevention of Hæmorrhage, the Ligature of Vessels, and Amputations. Among the operations for ligature described is included that of the internal pudic artery; this is surely hardly necessary, as the occasions in which such an operation would be advisable—except for a wound, when the vessel should be tied at the wounded spot—can hardly be imagined. The instruments employed in operation are more fully described and illustrated than is usual; this is a decided improvement. The whole article is excellent.

It is not possible to judge of the whole work from this first volume, but we may say of it that it gives a careful and accurate account of that part of surgery of which it treats, and that it is worthy of the position to which surgery has attained in the great republic whence it comes.

Public Health in European Capitals. By THOMAS M. LEGGE, M.D. Oxon., D.P.H. Cantab. London: Swan Sonnenschein and Co. 1896.

THIS little volume represents Dr. Legge's personal observations on the conditions of public health prevailing in most of the capitals of Northern Europe. He has visited Paris, Berlin, Copenhagen, Christiania, Stockholm, and Brussels, and has studied their sanitary conditions with thoroughness. Some of the material has already appeared in our own pages, Dr. Legge having visited the Scandinavian capitals as one of our special commissioners. Everyone interested in public health in our own country will welcome the concise and admirable account of what has been done abroad which this volume furnishes. It provides much food for reflection; for, though England has been the pioneer in sanitary science, it is indisputable that in some matters we remain far behind the times as compared with our Continental neighbours. It is impossible to read Dr. Legge's account of the municipal night shelter in Berlin, of the "Service des Enfants Assistés" in Paris, of the strict bacteriological control of the Berlin water-supply, and the rigorous system of meat inspection which prevails in most of the cities abroad, without a feeling of astonishment at our own comparative neglect of obvious sanitary precautions. Perhaps the most awakening section in the book is that dealing with the control of the milk-supply in Copenhagen and Stockholm. In Copenhagen the principal milk company acts on the belief that no pains or expense should be spared to avoid the dissemination of tuberculosis by milk; yet it can supply the best milk at a shilling per gallon and pay a dividend of 5 per cent. It is satisfactory, however, to find that there are many matters—notably sanitary law and administration, house drainage, the housing of the working classes, and the accommodation in isolation hospitals—in which England remains far in advance of other countries. Even the general reader will find much in Dr. Legge's book to repay the trouble of its perusal, and to the student of public health it will prove to be a very instructive and useful work.

MAGAZINES.

The Journal of Anatomy and Physiology. Conducted by Sir GEORGE HUMPHRY, Sir WM. TURNER, and Dr. J. E. M'KENDRICK. Vol. XXX., Part 2, January. London: Charles Griffin and Co. 6s.—This part contains:—1. A description of Two Symmelian Monsters, by T. Manners-Smith, Chief Demonstrator on Anatomy, Mason College, Birmingham. In these monsters the two inferior extremities are more or less united. The paper is short but well written. 2. Morphology of the True Limbic Lobe, Corpus Callosum, Septum Pellucidum, and Fornix, by G. Elliot Smith, M.D., Demonstrator of Anatomy, University of Sydney. 3. An interesting abnormality of the Hepatic Artery, with explanation of the condition, by Professor E. Fawcett, of University College, Bristol. 4. Abnormal Distribution of the Nervus Dorsalis Scapulæ, and of Certain of the Intercostal Nerves, by A. Francis Dixon, M.B., Demonstrator of Anatomy, Trinity College, Dublin. 5. Abnormal Anterior Abdominal Vein in a Frog, by A. H. R. Bullers, Mason College, Birmingham. 6. The Bile Salts (Glyco- and Tauro-cholate of Soda) in their Relation to Urea, &c., by G. H. Edgington, M.B. Glasg. These researches, the results of which are described in this paper, were made on a woman with fistula of the gall-bladder, and showed *inter alia* that the quantity of bile discharged varies inversely with the urine, and that the minimum appears to be from about 12 to 4 A.M., and the maximum from 4 to 8 A.M. The specific gravity was about 1011. 7. Notes on the Anatomy of an Anencephalous Fœtus having Three Arms and Three Lower Limbs, by F. G. Parsons, F.R.C.S., Demonstrator of Anatomy at St. Thomas's Hospital. 8. The Influence of a Previous Sire, by A. L. Bell, M.B., Dunfermline, in which doubt is thrown upon the existence of such influence, and several very interesting cases are cited. 9. A Variation that occurs in the Manubrium Sterni of Higher Primates, by Arthur Keith, M.D., F.R.C.S., Senior Demonstrator of Anatomy, London Hospital Medical College. 10. Further Notes on the Brain of Ornithorhyncus Paradoxus, by Professor Sir William Turner. 11. Some Observations on the Topographical Anatomy of the Fourchette, by G. F. Blacker, Assistant Obstetric Physician, University College

Hospital, showing that the fourchette is formed by the labia minora. 13. The True Capsule of the Knee-joint, by Hubert Higgins; and 14, by the same author, the Geniculate Articular Surfaces of the Femur and Tibia. 15. Urinary Calculi: their Formation and Structure, by Sir George Murray Humphry.

The West London Medical Journal.—This is the first number of the newly founded quarterly journal of the West London Medico-Chirurgical Society, and we congratulate that enterprising body upon a departure which is, in London at any rate, a novelty among medical societies. The opening article is the Presidential address of Dr. Symons Eccles on the Advantages of Oxidation, which was published in THE LANCET of Nov. 9th, 1895. Dr. Donald Hood follows with an interesting paper upon Gastric Ulceration. Mr. Bruce Clarke treats of the subject from the surgical point of view, and Dr. Seymour Taylor from the medical. The rest of the journal is made up of reports of the society's proceedings, a "Mirror" of Hospital Cases, Reviews, Notes, News, and what we consider a very good idea—namely, a complete list, so far as can be given at so early a date, of post-graduate courses for 1896.

The Birmingham Medical Review.—Sir W. F. Wade has an interesting paper upon the Preventive Treatment of Certain Forms of Sick Headache. The form specially treated of is that which apparently arises from some hepatic or gastric disturbance. For this he strongly recommends sulphate of potash. The Middlemore Lecture, by Dr. Wood White, is an instructive paper upon that most important subject, Ulcer of the Cornea.

The Quarterly Medical Journal.—This periodical, which, as a sub-title shows, appeals chiefly to medical readers in Yorkshire and the surrounding counties, opens with a warm and well-deserved tribute to the late Mr. Arthur Jackson. Mr. C. B. Lockwood follows with one of his shrewd and eminently practical papers upon Antiseptic Surgery. Dr. Philip Turner discourses of Soranus of Ephesus, fl. 91–158 A.D., a notable obstetrician. Dr. Sinclair White publishes two interesting and successful cases—one of Laminectomy for Paraplegia due to Spinal Caries; the other of Removal of a limited Sarcoma of the Astragalus. There are other notable papers by Dr. F. M. Pope, Mr. J. S. Curgenven, Mr. W. D. James, and others; also reviews of books and abstracts of papers, &c., from various foreign journals.

The Dublin Journal of Medical Science.—Among the notable original communications to this journal is one upon Colotomy and the indications for it, by Mr. W. T. Wheeler. Dr. John Knott continues his researches into the medicine and surgery of the Homeric poems. The thoughtful address of Sir W. Thornley Stoker, delivered before the surgical section of the Royal Academy of Medicine in Ireland in November, 1895, is reprinted, and is full of valuable hints.

The American Journal of the Medical Sciences has, among a number of other papers, an interesting one by Dr. W. Keen, the subject being Operations upon the Gasserian Ganglion, with four successful and one unsuccessful case.

Appleton's Popular Science Monthly.—The January number this really popularly written journal contains very nearly a score of papers which offer the reader a very wide choice of subjects so that he cannot well miss those nearest his interest. The first article, by Professor Henry C. Bolton, is Part I. of a contribution on the Origin, Growth, and Activity of the Smithsonian Institution. Professor C. A. Young writes on Helion and its Properties, in which he gives an interesting and faithful summary of the present position of our knowledge in regard to this newly discovered constituent. He considers it uncertain whether Professor Ramsay has introduced to the world one infant or a pair of twins. At any rate, argon is, as Professor Norman Lockyer puts it, of the earth earthy, but helion (we commend this spelling to Prof. Young and everyone else) is distinctly celestial, and the fact of helion being a stranger on the earth is accounted for by Johnstone Stoney's deductions from the accepted theory of gases that no free gas can remain permanently upon a heavenly body of small mass and habitable temperature, but that the molecules will fly off into space. This accounts also for the practical absence of free hydrogen or other light gas in our atmosphere. The marvellous results obtained by Moissan form the fascinating subject of another paper. These remarkable researches are bringing to light a new chemistry at high temperatures from which industry will most likely draw numerous applications and undergo important modifications through the use of electrical force. We ask of the forces of nature, says M. Moissan, all they can yield, and they are capable of easy use when transformed into electricity. The journal affords a very readable record of recent advance and thought.

The Analyst, January, 1896.—We congratulate the Society of Public Analysts on the appearance of the first number of Volume XXI. of their journal. In the first place a distinct improvement has been made in the title-page, which now contains a synopsis of the contents so classified as to make the information that may be sought easily found. As to the contents we find now twenty-eight instead of fourteen pages devoted partly to the reports of the proceedings of the society and partly to a useful series of abstracts of foreign and other papers dealing with information of interest to the modern and necessarily scientific analyst. Each day sees advances made in analytical methods, and the *Analyst* supplies a long-felt want in recording these advances, and of putting the knowledge of them in the possession of analytical practitioners. When the society of public analysts was founded some twenty years ago it was a small and comparatively unimportant body, but—mainly due to the excellent work it has since done in connexion with the appointment of standards and the publication of reliable analytical methods bearing on food-supply—it has come into prominence, and doubtless will come into further prominence in the future, since the experience of an aggregate body such as this is likely to prove of service and to have an important influence in directing attention to the defects of legislative measures. It follows from all this that the journal should consistently contain the latest word on analytical chemistry and related matters.

THE CASE OF MR. LIONEL SMITH.

WE publish a third list of contributions to this most deserving fund, and beg again to urge the hardship of Mr. Lionel Smith's case upon the attention of our readers. He has engaged to leave England in a week's time to take a small post under Government in Zululand. He is an absolutely ruined man through no fault of his own, and he has charges upon him that make it very difficult for him to leave England and begin an official career again until they are settled. The following contributions, additional to those acknowledged in THE LANCET of Jan. 4th and 18th, have been received by us:—

Amount previously acknowledged as received by us	£58	6	0
Mr. W. Beecham	0	10	6
Mr. J. F. Churchill	1	1	0
Dr. J. J. Goodhart	10	10	0
Mr. F. J. Pearse	1	1	0
Dr. S. West	1	1	0
Dr. J. R. White	1	1	0
Acknowledged by request of Mr. Lionel Smith:—			
Sir William Broadbent	5	5	0

Additional contributions may be sent to THE LANCET Office, cheques and P.O.O.'s being made payable to the "Lionel Smith Fund."

THE LANCET.

LONDON: SATURDAY, JANUARY 25, 1896.

IN the midst of the eager, and at times feverish, pursuit of knowledge it is a wholesome thing to step aside and cast a look backward over the path that has been traversed and to take note of the conflicts that have been waged, of the mazes penetrated, and the obstacles surmounted by the seekers after truth in days gone by. There are few, however, who have the power to take such a view with the impartiality that is requisite to the faithful historian. It is notorious how divergent are the descriptions of purely historical facts that proceed from the pens of partisan writers; and many a public character has been sketched in quite opposite terms by the preconceived bias of the writer. It is, therefore, an advantage to have such a survey made by one who has himself done much to "make history" by his own personal achievements, whose pre-eminent position in the sphere of his activity entitles him to be heard with attention, and whose critical powers are of a high judicial order. There has just been published by Professor VIRCHOW an interesting contribution to the *Fortschrift* issued on the occasion of the centenary of the Frederick-William Institute, which, as a review of the progress of pathological science, is replete with interest and at the same time highly suggestive.[1] In it he traces the rise and growth of this study that lies at the basis of medicine, and demonstrates how remarkable has been its advance during the present century.

The change which has come over scientific medicine during this period can, Professor VIRCHOW thinks, be fitly compared with the revolution in ideas that occurred in the sixteenth century through the teaching of VESALIUS and PARACELSUS. Those men were the pioneers in the liberation of medical thought from the dogmas that had prevailed for 2000 years, and their service in the reformation of science is, according to Professor VIRCHOW, paralleled by that of LUTHER and CALVIN in religion. Their work, however, needed to be supplemented by the new conceptions formed a century later by the discoveries of HARVEY, which caused a reversion to humoralism of a different kind to that of GALEN. For whereas in the latter's view the blood was only one of the four "κράσεις," it now came to be regarded apart from the other fluids, which are derived from it by secretion. The discovery of capillaries by MALPIGHI and of blood corpuscles by LEUWENHOEK strengthened the position of the new humoralism, and as formulated by BOERHAAVE—who is described by his pupil HALLER as the "communis Europæ præceptor"—these doctrines gained general acceptance. Professor VIRCHOW points out that the "institutiones" of BOERHAAVE were the text-book which was generally used for a century, and that his teaching may be said to have inspired the scientific pursuit of medicine. One of his pupils, GAUB, wrote the first treatise on general pathology, which had as its motto BOERHAAVE'S aphorism, "Morbus est vita præter naturam"—an expression of the biological aspect of disease that had not hitherto been grasped. Mingled with these ideas were the speculations as to the nature of vital force, originating in the fanciful "archæus" of PARACELSUS, expressed in the "irritability" of GLISSON, and later developed by HALLER, which opened the way to various lines of thought, including the doctrine of animism of STAHL, of animal electricity of GALVANI, and animal magnetism of MESMER. Such was the position of physiological and pathological ideas towards the close of the eighteenth century, when, too, for a brief space the teaching of JOHN BROWN in his "Elementa Medicinæ" was enthusiastically accepted and as suddenly discarded. But in the meantime more solid acquisitions were being made to knowledge in the study of morbid anatomy by MORGAGNI and VALSALVA, and that of experimental pathology by HUNTER.

Thus a hundred years ago pathological science was in its infancy and general pathology was largely dominated by *a priori* beliefs. There was no university in Berlin, yet LIEBERKÜHN was making discoveries in anatomy, the elder MECKEL was working at diseases of the heart, and CASPAR F. WOLFF was laying the foundations of embryology. The vitalistic school was represented by REIL and HUFELAND, who both indulged in speculations that tended to reintroduce the mystic element in the conception of disease. It was early in the century, too, that homœopathy made its appearance, which, whilst starting from a conceivably rational basis in respect to the use of drugs, was carried on in so fanciful a manner and was itself so bound up with the mystical as to afford no help to scientific pharmacology and practically disregarded pathology. Although, says Professor VIRCHOW, homœopathy has continued to survive, it has not advanced the progress of science, nor has it, happily, delayed it. Similarly, the later developments of spiritualism and of hypnotism have done nothing to aid in this advance. RUDOLPHI and his famous pupil, JOHANNES MÜLLER, were, however, extending the field of scientific observation in anatomy, physiology, and pathology, and the younger MECKEL, laying the basis of teratology by working on embryological lines instituted by HARVEY, HALLER, and HUNTER.

The brilliant genius of BICHAT opened up to view the facts that the body consisted of tissues and organs, each and all having their appropriate office and their individual vitality; and there is no doubt that his teaching did much to mould the thoughts of his illustrious pupils LAENNEC and DUPUYTREN in their application of pathological facts to clinical observation. MAGENDIE, by his researches in experimental physiology, was gradually replacing hypotheses by facts; and CHARLES BELL and MARSHALL HALL in England were contributing to the same end. In France CRUVEILHIER had made pathological anatomy interesting and attractive; whilst ANDRAL and BROUSSAIS were importing physiological facts to the interpretation of disease. During this time the progress of pathology in Germany was still under the dominion of vitalistic notions, but the doctrine of parasitism was taking form under the teaching of SCHÖNLEIN, who himself discovered some parasitic fungi. In Austria, where the Vienna General Hospital was

[1] Hundert Jahre Allgemeinen Pathologie. Von Rudolf Virchow. Berlin: A. Hirschwald.

founded in 1784, there had been such men as VAN SWIETEN and DE HAEN and STOLL, succeeded by SKODA and ROKITANSKY, who did so much for scientific medicine and pathology. Professor VIRCHOW especially pays a tribute to ROKITANSKY'S great work on pathological anatomy for its wide and accurate knowledge and careful personal observation. However, ROKITANSKY in general pathology made a retrograde step, for he based it on ideas as to blood dyscrasia and albuminous changes which were as purely speculative as any of the older humoralistic notions. Much of the more stable additions to knowledge came now from Germany. Professor VIRCHOW himself has been the most prominent of the large number of earnest pathological workers during the half century. He was assistant to FRORIEP in 1844, and on the latter's recommendation became prosector to the Charité Hospital in 1846. The Pathological Institute was founded subsequently, and throughout this long period Professor VIRCHOW has been the inspirer of all the important work that has come from this laboratory. The names of men memorable for advances in pathological research crowd into this most fruitful epoch. Microscopical research became a prominent feature in the study, whilst not a little impetus to its cultivation was the foundation of the *Archiv für Pathologische Anatomie* by RHEINHARDT and VIRCHOW, which has now completed its 142nd volume. We must perforce confine our notice of this period to the observation that it was Professor VIRCHOW'S own work in promulgating the doctrine of cell pathology that did more than anything else to place the science on an intelligible and rational foundation. It is a history as fascinating as any romance, but the truth of the conception of cell life is one now so universally admitted that we may be pardoned for not at present pursuing it in all its interesting development. Nor has the doctrine been shaken by any of the later additions that have been made to knowledge. Bacteriology, which had its origin in the botanical researches of COHN, and its application to mycotic diseases has not influenced the position of those who in old days were called cell "theorists." As Professor VIRCHOW points out, the microbe is not the disease but only its cause, for the former is the sum of the changes induced in the cells of the body by the products of the activity of the microbe. The toxines of BRIEGER and the ptomaines of SELMI are the products of bacterial organisms which exist as parasites in the body. The last decade has been full of work in this direction, but it has still to be proved that there may not be some infectious diseases in which bacteria play no part, and it is remarkable that some of the diseases in which the subject of artificial immunity has been studied by PASTEUR are diseases in which no bacterial parasite has yet been forthcoming. The further development of the study which has led, through BEHRING and others, to the system of serum therapy, has been thought to point to a return to humoral pathology; but the analogy with putrid infection shows that it is not the blood alone, but the tissues that are influenced by antitoxines. And the study of the action of tissue juices —e.g., of thyroid and pancreas—points in the same direction. It is still true that disease must be regarded as the disordered vitality of cells and cell territories, and in the last resort even the problems of immunity must be referable to cell changes.

Nor do we think that it is possible to gainsay the truth of such assertions, for on this question Professor VIRCHOW does not speak as a partisan, although he is linked with the great and fruitful doctrine of cell pathology. It seems to us that that doctrine in its essence is one of those facts which are permanent and immutable, and that whatever new advances are made, they must be explained through it. In closing his review of the pathology of the century, in the pursuit of which he has taken so large a share, Professor VIRCHOW says that the summit has not yet been attained; we are in the midst of researches which, under new methods and aids, promise great results, and he is confident that the progress of science, even if interrupted at times by speculative hypotheses, will go steadily onward, so that when another century is completed the record of the intervening years will show as great and as permanent achievements as those which we are now contemplating.

MR. JAMES LONG'S article in the *Nineteenth Century* on the subject, "Can the Empire feed its People?" abounds in interesting and valuable matter. The two positions which the writer seeks to establish are: (1) that, although, after the first year, it might be possible to provide the necessary food of the people upon our own soil, that achievement could only be accomplished by the importation of enormous quantities of cattle foods and manures, so that the remedy would be as bad as the disease; and (2) that under the conditions which could be created in a few years by the coöperation of our Government with the Governments of our great colonies, all the surplus food-stuffs we require, as well as the more luxurious products of the soil, could be produced in Canada, Anstralasia, India, and South Africa. It would seem that the sums advanced by the nation to our colonies and dependencies at a low rate of interest are estimated to reach the vast total of £1,000,000,000, so that there are the strongest grounds of mutual interest for drawing more closely the ties which unite Great Britain to her vigorous offshoots. The writer deals first with the facts relating to wheat production. Eighteen years ago the average price per quarter for the year was 56*s.* 9*d.*; during the past winter it fell to 20*s.* Twenty years ago the export of wheat from the United States amounted to 76,000,000 bushels; in 1891 the quantity exported had risen to 227,000,000 bushels. The output of wheat from Canada in the decade 1880–90 increased by 10,000,000 bushels. India, which exported less than 500,000 bushels in 1880, now annually exports not less than 30,000,000 bushels. Australia and Argentina show similar increases, and so vast is now the wheat production of the world, and by consequence so low the price, that wheat-growing is no longer profitable in Great Britain. The consumption of wheat in this country is reckoned at six bushels per head per annum, which, on the basis of an estimated population of 38,900,000, makes a total consumption of 233,400,000 bushels. The total home production of wheat is only 64,000,000 bushels, so that it is evident we depend upon outside sources for nearly three-fourths of our supply. Mr. LONG'S contention is that, although at the present time the colonies and India are

incapable of yielding us the necessary supplies (their surplus for export being only about 55,000,000 bushels), their latent capacity of production is so enormous that there is no reason why in the near future they might not be able to do so. As regards oats and barley, we import more than one-half from Russia. Of the sixty odd million bushels of maize we import, only one-tenth is grown within the Empire.

The facts regarding the production of meat are very interesting. The annual consumption of meat per head per annum in the United Kingdom is 124·8 lb., divided into beef, 65·7 lb., mutton, 28·3 lb., pig meat, 28·6 lb., other kinds 2·2 lb. This is a high average compared with other countries and is a convincing proof of the general comfort and prosperity of the people of these islands. Of the total amount consumed—viz., 124·8 lb. per head—we import 37·3 lb. Mr. LONG works out some interesting calculations with the view of showing that the United Kingdom and the colonies are capable of supporting a vastly larger aggregate of stock than would be necessary to afford supplies to meet the above rate of consumption. The total number of live stock in the United Kingdom, Canada, and Australasia "represents nearly five times as many cattle, and seven times as many sheep, as are annually required, and, making every allowance for difference of breed, feed, and climate, which, comparatively insignificant as they are, would speedily cease to exert any influence, there is an ample stock for the supply of a much larger population than that of the United Kingdom and the colonies. Pigs are multiplied too rapidly to cause any anxiety as to their absolute sufficiency."

The question of dairy produce next claims attention, and it is interesting to learn that "the produce of the dairy farms is immensely superior in value to the whole cereal and pulse crops of the country combined." Mr. LONG has no fear that in this department we are in danger of being eclipsed by other nations, affirming that "the quality of the butter and cheese made in these islands is not exceeded in any other country in the world—indeed, it is approached only upon a few farms in Normandy, and probably still fewer in Canada and the United States." The annual consumption of milk (with cream) in these islands is thirteen gallons per head. To this must be added the milk used for butter-making and cheese-making and for condensing, making a total consumption of about 1,400,000,000 gallons. The production of milk in the United Kingdom and the colonies falls somewhat under this figure, but their resources in this particular are capable of almost unlimited augmentation.

We are not so much concerned with Mr. LONG'S special contention that the Empire is capable of feeding itself as with his statistics in throwing light on the dietetic habits, and hence on the prosperity and health, of our people. It is evident that the English nation on the whole lives well, that its average consumption of meat is high, and that its standard of comfort is no mean one. Whether our meat-consumption be too high or not may be a question. Allowing for the undoubted fact that among certain classes, especially of the urban population, the amount of meat consumed is out of all just proportion to the other factors of the dietary, and that various evils—gout, rheumatism, Bright's disease—are the result, it is not clear that the meat-eating habits of the nation generally are injurious to it. On the contrary, it seems probable that they are one of the elements in its vigour and fecundity. But it is much to be desired that the choice of a meat diet, which always seems to go hand-in-hand with prosperity and wealth, should be limited by the adequate recognition of the indispensable nature of the other food elements. Our urban populations should be encouraged to make a freer use of vegetables, fruits, and dairy produce. Every effort should be made to secure a cheap, adequate, and uncontaminated supply of milk, with a view especially to the welfare of the infant population. The consumption of fish, for the supply of which the United Kingdom affords the most unrivalled opportunities, should be facilitated.

Mr. LONG'S facts and figures are well worthy of the attention of agriculturists and all those who take an interest in the welfare of the rural population. Farmers are one of the most conservative of classes, and there can be little doubt that agricultural distress, perhaps to a certain extent inevitable, has been much aggravated by the failure of the farmer to adapt his methods to the altered needs of a new era. It is evident that the days of profitable wheat-growing in Great Britain are a thing of the past. This in itself amounts to a revolution, and it is for experts to advise on the agricultural methods which can most hopefully take its place. To this end Mr. LONG'S able paper should be decidedly helpful.

COLONEL MONTEFIORE'S paper on Some Features of Hospital Finance, with special Reference to the Formation of a Central Hospital Board for London, attracted a large and representative audience to the Victoria Hotel on Monday. The medical profession was well represented. Mr. BRYANT presided, and Sir WILLIAM BROADBENT, Dr. HERON, Mr. HOLMES, and others took part in the discussion. There was nothing very new in Colonel MONTEFIORE'S representation of the subject, and some of the speakers were evidently disappointed that he did not bring forward some more complete and fully-fledged scheme for promoting the objects that all good hospital reformers have in view—a limitation in the number of hospitals, better geographical distribution of them over the metropolitan area, and the exclusion of unfit cases and persons from the benefits they supply. Apart from any great novelty in the paper read, it had the merit of presenting the subject in its essential elements. First, he dealt with the financial facts, then with the influence of the councils of the Hospital Sunday and Hospital Saturday Funds in checking the tendency to lavish and expensive management, and finally with the proposal to create a central hospital board for the metropolis representative of lay and medical interests, that shall issue public reports giving details of the various medical charities, and make recommendations, with power also to receive donations and bequests for distribution among the hospitals and dispensaries of the metropolitan area. In the discussion Dr. HERON dwelt on the faults of the out-patient department as obviously inconsistent with proper attention to the patients, and as obviously demoralising to the people and unjust to the medical profession. He argued that this department was a chief source of waste of the resources of the hospitals.

His low estimate of this department and of the value of its work was shared by most speakers and apparently by the meeting generally, though Mr. BRYANT spoke as if he believed that the abuse of the department by mean people of the well-to-do classes was an exceptional occurrence not affecting the general merit of the system. Sir WILLIAM BROADBENT gave his adhesion to the principle of a conjoint board, but pointed out that anything like dictation would have to be avoided in dealing with voluntary institutions. Mr. BRYANT, referring to the statement in Colonel MONTEFIORE'S paper, that something like £150 was the cost of each occupied bed in London, maintained that we should have twice the number of beds for the money, and that the excessive expenditure lay at the door of the special hospitals. What Colonel MONTEFIORE showed more clearly is that a large proportion of the liberality of the public, or, rather, of those who leave money behind them, goes to the special hospitals, to the impoverishment, perhaps, of the large general hospitals. It would seem as if there was something in specialism that appeals to individuals beyond the appeal of the general sufferings of mankind which are ministered to so efficiently in the large general hospitals of the country. But the paper might with advantage have shown in more detail the comparative cost of general and special hospitals.

There was a very general consensus of opinion that the chief hope for a remedy of the abuses which all admit is the creation of a central board, to serve as a kind of adviser to the general public in giving to the various hospitals. It must be admitted that the public gives without much discrimination of the various needs and merits of the hospitals. The principles on which the awards of the Hospital Sunday Fund are based seem to be sound, and have a remarkable degree of acceptance with the hospital authorities, if we may judge from the little opposition which is shown to the decisions of the distribution committee. But they are complicated and difficult to be understood by the people. Those of the Hospital Saturday Fund include a system of marks under which one-fifth is actually given for every 2600 attendances of out-patients. It is, moreover, considered an indication of efficiency to have evening arrangements for seeing out-patients. In other words, the principles of distribution in the Hospital Saturday Fund favour the development of the out-patient department in its worst features, and are liable to great objection from the point of view of those who wish to confine hospital and dispensary relief to the cases of those who are really both ill and poor. It might be thought that the application of the tests of the Hospital Saturday and Hospital Sunday Funds was sufficient to show to the public the merit of hospitals without the creation of a central body, as recommended by the Lords' Committee and as generally approved by almost every speaker on Monday. But the public sees little of the awards of the Funds and less of the data on which they are founded. The authorities, too, of the Hospital Saturday and Sunday Funds are regarded as not sufficiently representative in constitution to satisfy all parties, and are a little timid in the use of their critical faculties. They who give have the best right to be critical, and if a central board is not to be created for guiding public opinion in reference to the support of individual hospitals and the development of the system of voluntary hospitals, it will only be by a more courageous assertion of the right of criticism by the councils of the Hospital Sunday and Hospital Saturday Funds. The advocates of a central board move slowly, conscious, no doubt, of the difficulties of such a scheme. But if they wish to be taken seriously they must proceed to something definite, and that without delay.

Annotations.

"Ne quid nimis."

THE UNIVERSITY OF LONDON.

AT the meeting of Convocation on Tuesday, the 21st inst., a very large number of graduates were present, and by a majority of 226 votes (466 for and 240 against) Professor Silvanus Thompson's resolution for reconstituting the University was carried. The Convocation has thus, in the only way open to it by Charter, declared for a Statutory Commission and for the overriding of its own power of veto. As, however, his Grace the Duke of Devonshire asked for the opinion of the country graduates, and as one of them, Mr. Dembski, explained that the day of the meeting was one on which it was impossible for most of them to attend, we question whether the Government will yet be persuaded to bring in the Bill asked for by those who voted in the majority. We shall look forward with some curiosity to the expression of the Duke of Devonshire's views on the subject, and this will probably not be given until the meeting of Parliament.

PRINCE HENRY OF BATTENBERG.

THE news of the death of Prince Henry of Battenberg will have been received with extreme regret. He was a soldier, a sportsman, and an amiable gentleman, and the spirit of adventure which led him to Africa has been sadly rewarded. The Prince left this country apparently full of physical vigour and in excellent health, and his death is attributable to climatic causes. It will be remembered that he greatly felt the exhausting effects of the heat on his way up to Prahsu, and was shortly afterwards attacked with a malarious form of African fever of a severe type, rendering his return to the base necessary. It occasionally happens, especially in the case of young and healthy persons newly arrived on the Gold Coast, that when attacked with fever, the disease, instead of being of an intermittent, is of a continuous and severe, type, and runs a comparatively rapid course attended with much nervous and vascular depression. The severe symptoms are then in direct proportion to the virility of the subject, and the greater his powers of resistance the severer the fever and the more complete the subsequent surrender. This was no doubt the case in the instance of the unfortunate Prince. That he received all the skilful attention which could be afforded goes without saying; we can only deeply regret that it was given in vain. We offer our respectful sympathies to the mother of his children and to the rest of the Royal Family in the grave affliction and loss that they have sustained.

THE NEW PHOTOGRAPHIC DISCOVERY.

As we predicted last week, the developments of the new photographic discovery proceed apace. The remarkable results obtained by Professor Roentgen in Würzburg have been confirmed by Mr. A. A. C. Swinton so completely that we learn from him that lantern slides of photographs of the human hand and of other objects may shortly be

obtained of Messrs. Newton and Co. of 3, Fleet-street, Temple Bar. Elsewhere our readers will inspect with interest two photographs, one of a human hand and one of a frog, which were produced with Mr. Swinton's powerful apparatus at his laboratory in our presence. He employs the electric current of high pressure and periodicity, discharging through a Crookes vacuum bulb containing a substance such as calcium sulphide, which phosphoresces under the influence of the discharge. The exact nature of the radiations which pass through substances which, ordinarily speaking, are opaque, is not yet understood. Glass appears to rank with these substances, although it does not appear in that case why the radiations pierce the glass of the vacuum tube. A photograph, however, has been obtained of a man's hand in which a piece of glass had become firmly embedded. The print shows with faithfulness the bones and joints of the hand and the piece of glass as a clear and distinct shadow. It will be noticed at once how clear are the gaps between the phalanges of the fingers in our own illustrations, showing the transparency of the cartilage to these radiations. The application of this remarkable phenomenon to the discovery of bullets and abnormalities in the structure of bone has already been made, with very promising results. It is reported already from Vienna, for instance, that photographic pictures taken by this means showed with the greatest clearness and precision the injuries caused by a revolver shot in the hand of a man and the position of the bullet. In another case, that of a girl, the position and nature of a malformation in the left foot were ascertained. As the conditions of these experiments become perfected with regard to the source of the radiations there is no doubt that the result will be even more brilliant. We gladly take this opportunity of thanking Mr. Swinton and his assistant for the demonstration which they afforded us of the main details of the working of the process and for permitting us the use of the apparatus for the purpose of illustrating to our readers the probabilities of the application of this remarkable discovery.

REPLACING THE BRIGHTON SLUMS.

THERE was a long discussion at the meeting of the Brighton town council on Thursday, Jan. 16th, with regard to the Cumberland-place area. A quantity of property in this part of the town was condemned some time ago, the buildings being demolished, and the sanitary committee have had under consideration the rebuilding of the district with more habitable and healthy dwellings. Three courses were open to the council, who had acquired the site at a total cost of about £60,000—viz., to sell the plots subject to conditions providing for the erection of houses in accordance with the plans submitted by the borough surveyor; to let the land on a long lease of, say, ninety-nine years subject to like conditions; or to retain the land in their own possession and, with the consent of the Local Government Board, to themselves erect the necessary houses and afterwards carry on and manage them. It may here be mentioned that the council decided on the latter course, but the first and longest discussion was as to the nature of the buildings proposed to be put up in the area mentioned. By the terms of the order confirming the scheme the corporation was directed to provide house-room for 1113 persons. Of that number 552 have been already accommodated in Ewart-street, leaving 561 to be provided for. The committee proposed to lay out two new streets (to be named after the mayor and another member of the council) of eighty-one "self-contained" cottages of six rooms, and the frontages in streets already existing are to take fourteen shops with dwellings attached and six more cottages—eighty-seven workmen's dwellings in all. The probable cost of each of these houses, including the estimated value of the land, is put at £305. Assuming this sum to be borrowed for thirty years, the charge for repayment of debt and interest will be £15 11*s.* 3*d.* per annum, the total outgoing, including this figure and allowance for rates and taxes, repairs, empties, insurance, and contingencies, comes to £23 7*s.* 3*d.* per annum each. The council will thus be able to let the houses at about 9*s.* per week. The council agreed to offer the corner shop plots and the shop frontages on existing streets for sale by auction for the erection of special houses in accordance with the whole scheme and on the plans of the borough surveyor. The chief objection to this scheme in its entirety was put forward by Mr. Turton, F.R.C.S. Eng., who drew attention to the fact that out of the 900 persons who had been displaced from this area 270 were occupants of common lodging-houses. The Housing of the Working Classes Act, he said, stated that the local authorities should re-house those displaced in suitable tenements, and there was a tendency to make these schemes rather street-improvement schemes than improved housing of the working-classes projects. That there is much to be said in this direction is shown by the fact that the whole of the registered common lodging-houses in the borough except two stood on this area, nor must a petition from the inhabitants in the neighbourhood against the re-erection of such accommodation be admitted as a fair excuse for exporting such houses to another part of the town. The committee had taken the matter into consideration, however, and recommended negotiations for the purchase of land near the Cumberland-place area for the erection of a model common lodging-house as against the placing of such a building on the ground now cleared for operations. The committee were unanimous on this point, in favour of which, however, no weighty argument was put forward. Sir Joseph Ewart, M.D., piloted the recommendations through the council, and the committee's work was endorsed throughout. The new streets are to be laid out by the corporation and, together with the other house plots, retained by them; the vacant shop plots are to be sold, and land elsewhere is to be obtained for common lodging accommodation.

A REMARKABLE ACCIDENT.

A CASE of gunshot injury to the femoral vein, remarkable not only for its surgical interest but also for the peculiar way in which it was caused, is related in the *Lyon Médical* for 1895.[1] An artist aged thirty-six used to keep a shell in his studio as a relic of the war of 1870, believing it to be uncharged. On Aug. 3rd, 1894, having lighted a cigarette, he threw down the unextinguished match, when by chance it entered the narrow mouth of the projectile, which very soon afterwards exploded, one of the fragments impinging on the heedless smoker's right inguino-crural region and producing violent hæmorrhage. Fortunately a medical man was promptly on the scene and was able to restrain the bleeding by means of a plug of iodoformed gauze. The patient was then transported to the Hôtel Dieu, where he was at once attended to by the resident surgeon, M. Commandeur, an hour and a half having elapsed since the explosion. On admission the artist's general condition was good; his face was pale and spotted with powder marks, but there was no shock. The wound occupied Scarpa's triangle, measuring about fifteen centimetres by eight, and extending slightly above Poupart's ligament, where, however, only the integument was implicated. The bottom of the wound was almost entirely hidden by a wrinkled mass, in which three layers, formed by trousers, shirt, and drawers, were plainly distinguishable, but no metallic substance could be discerned.

[1] Tome i., p. 459.

A considerable effort was needed for the extraction of this mass, and on examination it was found to enclose a fragment of the shell eight centimetres long by five broad, about twelve millimetres in thickness, triangular in shape, and weighing 181 grammes. Enveloped in a sheath of clothing, this formidable missile had penetrated the adductor muscles of the thigh, hollowing out a conical tunnel nine or ten centimetres deep, and extending as far as the descending ramus of the ischium. The moment the foreign body was removed blood of a dark colour gushed forth in profusion from two sources, but the prompt application of a pair of forceps immediately controlled the flow. It then became possible to examine the wound more leisurely. The femoral artery occupied the central axis of the cavity, and, though denuded anteriorly for a considerable distance, was otherwise uninjured. The femoral vein, lying behind the artery and in close contact with it, could only be partially examined, but no attempt at isolation was made. Its walls had been partially divided by the fragment of shell, but the aperture was completely closed by the forceps. Protruding from the cellular tissue at the lower angle of the wound was a long, slender, ribbon-like structure—the lower end of the internal saphena vein, which had been entirely severed. The upper end was effectually closed by a second pair of forceps. Under the circumstances M. Commandeur decided to apply no ligatures, except in the case of the lower end of the saphena, and that more as a matter of form than from conviction of its necessity. The after-history of the case is one of unbroken success. The temperature never exceeded 101·2° F., and after the seventh day it became normal. The forceps were allowed to remain *in situ* till the fourth day, when they were removed without trouble. Cicatrisation was slow owing to the great loss of substance, but eventually the patient regained the complete use of his limb. The only circulatory complication was when he first began to walk. For four or five days slight œdema was then present, but it caused no inconvenience and did not recur.

SICKNESS AND MORTALITY DURING THE CRIMEAN WAR.

WE alluded last week to the Medical History of the Crimean War, by Dr. Paul Myrdacz. The subjoined table, taken from *Archives de Médecine et de Pharmacie Militaires* for January, 1896, gives the results of that writer's investigations into the losses which occurred in the course of the campaign.

Table showing the Sickness and Mortality during the Crimean War. (The figures refer exclusively to casualties at the seat of war itself.)

Army.	Strength (successive).	Killed in action.	Wounded.	Died from wounds.	Sick.	Died from sickness.	Died from accident, misadventure, &c.	Total losses.
French[1]	309,268	8,250	39,868	4,354	196,430	49,815	7,752	70,171
English[1] ...	97,864	2,755	18,283	1,847	144,390	17,225	345	22,172
Italian[2]	21,000	12	167	16	21,896	2,166	—	2,194
Total... ...	428,132	11,017	58,318	6,217	362,716	69,206	8,097	94,537
Russian[3]... ...	324,478	21,000	92,381	14,671	322,097	37,454	2,288	73,125

These statistics are interesting, though manifestly incomplete in some respects. The information afforded is doubtless correct as far as it goes, but the table would be more satisfactory if it bore reference to a single period only. The difficulties in the way of a compilation of this kind after the lapse of so many years must be very great, but we should think that even now it would be possible to produce a more exhaustive record of the casualties that owed their origin, directly or indirectly, to the siege and fall of Sebastopol. According to Chenu and other authorities, the French losses exceeded 95,000, but in this estimate are included the deaths of invalids in France and elsewhere. The British losses were also much greater than would appear from Dr. Myrdacz's table, but presumably the fatal cases at Scutari are not allowed for in that record. As regards the Russians, Chenu says that from first to last, and inclusive of their operations against the Turks, no fewer than 630,000 men perished. Altogether, the bills of mortality may probably be set down as follows: British, 30,500; French, 95,500; Sardinian, 4000; Turkish, 40,000; Russian, 630,000; total, 800,000—a terrible, and, as the event proved, quite unnecessary holocaust.

[1] From April, 1854, to June, 1856. [2] From May, 1855, to June, 1856. [3] From September, 1854, to October, 1855.

A BRUTAL PROCLAMATION.

THE determination of Spain to retain possession of Cuba is one with which a colonising people like ourselves may easily sympathise, and, as the Spaniards have a proverb, "War with all the world, but peace with England," we are not the nation which would be likely to be biased in our consideration of the methods adopted by the Spanish Government for the settlement of Cuban affairs. Cuba was in revolt from 1868 to 1878—indeed, it was not reported tranquil till 1880—and during the succeeding ten or twelve years continual efforts were made to persuade the Cubans of the sympathy of many Americans, if not of the American Government, with them, should they choose to attempt further revolutionary measures. It has been reported that the insurrection of 1868–78 was only suppressed by the exercise of a severity that amounted to reprehensible cruelty, for an account of which we refer our readers to a work entitled "The Book of Blood," which purports to be an authentic record of the policy that was adopted by modern Spain to destroy the independence of Cuba. This book gives a list of the political executions and transportations to penal settlements, and also of the prisoners whose fate has never been known, and constitutes a shocking record of inhumanity. We have nothing to do with the political side of the question, but with such a record—uncontradicted, we believe—against the Government we are justified in commenting upon any methods pursued towards the insurgents which seem to us contrary to the ethics of civilised war. We have received from a correspondent in Havana the text of one of the orders of the General-in-Chief of the Army of Operations, which runs as follows:—

"Finding that in this insurrection a great part of the inhabitants of the country sympathise with the rebels, helping them with information and doing other services for them, and it being of the greatest importance that existence should be rendered difficult to these people by making them lack the means of subsistence which they draw from the towns, it is hereby forbidden to sell provisions or any clothing to women and children, and the same shall only be sold in small quantity to men, paying great attention that the salt sold them should be in quantity proportional to the provisions they obtain. I charge that much attention be paid to the fulfilment of this order, and that it be carried out with all severity, especially in the last-mentioned detail."

This order appears to us unworthy of a historic European nation unable to control rebels by the sword. It would seem that Spain seeks to discharge her vengeance upon their wives and children, trying to win back her lost districts by subjecting these helpless ones to privation. There is a particular sting contained in the last sentence of this order. Food in Cuba keeps badly and becomes rapidly unpalatable

unless largely intermixed with salt, while it is the firm belief of the residents that to be limited in their supply of this mineral adjunct to their diet produces a sort of dyscrasia. So that the order will touch the insurgents in a particularly delicate spot; for, while it will put their women and children to serious privation if it is rigidly obeyed (which, in view of the success of the rebel arms, we may be certain it will not be), the troubles of the mothers will be aggravated by the haunting apprehension that not starvation alone but disease is hanging over their offspring. For any food they may obtain elsewhere will have to be eaten without salt. It is impossible not to hold that such an order is brutal, though all who are conversant with the history of the colony and the late rebellion admit that Spain has had a terribly hard and exasperating task, and still has that task, before her.

THE LAW AS TO DYING DECLARATIONS.

AT the Wiltshire Assize, held last week, Emily Lazenby, Mary Stretch, and Edwin Scriven were charged with the wilful murder of Martha Scriven at Swindon. There was a second charge against Lazenby of feloniously using a certain instrument, and Stretch and Scriven were charged with aiding and procuring Lazenby to commit the felony. The magistrate's clerk gave evidence as to the taking of the dying depositions of the woman. She stated that she made the declaration in the fear of death and of immediate death. Some considerable controversy took place between counsel as to the admissibility of this declaration, on the ground put forward by the defence that the woman did not believe that she was immediately dying. The medical attendant deposed to telling the woman repeatedly that she was dying. There was one clause in the declaration, "I might get better; I mean to have a good try." It was contended that this proved that the woman was not in hopeless expectation of immediate death, and Mr. Commissioner Bosanquet, Q.C., decided to disallow the document as a dying declaration as against all three prisoners, but admitted it as evidence against the two women, because they were present at the time it was read over to her, and he declined to grant a case for the higher courts on this point. A verdict of "Manslaughter" was returned, and the woman Lazenby was sentenced to seven years' penal servitude and the other two prisoners to five years' penal servitude each.

THE WANDERING CELLS OF THE ALIMENTARY CANAL[a]

To a recent number of the *Journal of Physiology* W. B. Hardy, M.A., and F. F. Wesbrook, M.D., contribute an interesting paper on the Wandering Cells of the Alimentary Canal. One of the results of modern microscopical investigation is to show that to obtain successful sections it is essential that the tissue should be taken from the body and plunged into the fixing solution as quickly as possible after death, a few minutes more or less materially modifying the appearances presented. Accordingly, Mr. Hardy and Dr. Wesbrook removed the portion of gut intended for examination within, at most, a minute after the cessation of the blood flow. The section was then fixed with absolute alcohol and a saturated solution of corrosive sublimate in a 0·6 per cent. salt solution at a temperature of 212° F., though in some nstances gold chloride and osmic acid vapour were employed. The staining agents used were chiefly Ehrlich's neutral mixture and the Ehrlich-Biondi mixture, but many acid and basic stains were also employed. Now, in the bodies of all the higher Metazoa there is a tissue composed of isolated units of which each cell is endowed with amœboid movement and has its home in the fluids of the body, and three kinds of these cells have been differentiated — the oxyphile cell, bearing discrete granules, which stain with acid dyes; the basophile cell, with discrete granules, staining with basic dyes; and hyaline cells, which do not form discrete granules. As these cells are all derived from the mesoblast the term "sporadic mesoblast" has been applied to them. One of the writers of the communication referred to, Mr. Hardy, and Dr. Kanthack have recognised two of these groups—namely, a hæmal group belonging to the blood system, and a cœlomic group related to the great cœlomic spaces and a closely related structure, the peripheral lymph system. The paper under notice is devoted to the consideration of the minute structure and function of those wandering cells which lie in the interspaces of the mucous coat of the gut and of the relation of these cells to the cœlomic and hæmal groups. The writers suggest the name of splanchnic cells for them. The oxyphile splanchnic cells are spheroidal with a spherical or horseshoe-shaped nucleus, resembling in this particular the coarsely granular oxyphile cell. The cell substance is crowded with discrete granules which stain with acid dyes. These cells chiefly wander into the crypt epithelium. The splanchnic basophile cells are especially numerous in the carnivora, a single villus in a dog containing as many as 500. The granule substance is remarkable for its extreme instability in presence of even small quantities of water. Hence the gut has to be dehydrated rapidly with absolute alcohol if they are to be preserved. The cells vary much in shape, but are usually flattened conformably to the surface of the gut, and the cell substance is crowded with granules. They are smaller than the cœlomic basophile cells. They form in carnivora an almost continuous layer beneath the epithelium of the villi, but are more scattered through the substance of the villi in herbivora. The splanchnic hyaline cells are very numerous and are spheroidal or polygonal in form, with a rounded nucleus, and readily take up iron compounds. They chiefly wander into the epithelium of the villi. The cells, although the writers put forward their opinions with all reserve, collectively appear to undergo changes in total and relative number, in the size and composition of their granules, and in their distribution as influenced by their own proper movement in the mucous coat. They seem to be affected by the presence of food in the gut, by its absence, and by the extent to which the gut is invaded by microcosms.

INDIA AND ITS SANITARY SERVICE.

THE late announcement of the Government of India, dealing with the reorganisation of the sanitary department and the establishment of a bacteriological institute at Agra, has not escaped a good deal of adverse criticism in India, especially on the part of the medical services in that country. Without at all depreciating the scientific reputation and ability of Mr. Hankin or the services he has rendered in connexion with practical bacteriology, it is contended that Brigade-Surgeon-Lieutenant-Colonel D. D. Cunningham's claims have not received the recognition they merit from the Government of India. He is a Fellow of the Royal Society, was the recipient in 1895 of the Stewart Prize, the award of the British Medical Association, and in addition to being the head of his batch at Netley, and having been afterwards highly trained abroad, he has great Indian experience and a long record of original scientific work. People are asking, What is the use of all this and of Netley and its system of training if the Indian Government has to go outside its own service to get its work done? We understand, however, that while Mr. Hankin is to direct the institute of bacteriology at Agra, Brigade-Surgeon Lieutenant-Colonel D. D. Cunningham is to undertake a similar duty at Calcutta to that which he has long carried on there. There is quite enough work to occupy the labours of both gentlemen, and the medical profession in India will no

doubt be only too glad to have their services, for they fully acknowledge the capital work which Mr. Hankin has done in India. It is quite right, of course, that all the modern methods of scientific research practised in Europe should be adopted and systematically applied in India, and we have frequently urged that this should be done. But this is not everything—it is only a means to an end; and we shall regard it as a distinctly retrograde step and a great injury to the progress of practical hygiene if India be deprived of its staff of sanitary commissioners. There is, as everybody knows, a great deal of practical sanitary work to be done in that country; questions bearing upon public health are constantly arising, and have to be dealt with in a prompt and practical manner; inspections have to be made, and cannot be dispensed with if even the elementary details of sanitation are to be attended to and pressed upon the notice of the local government authorities; and how are these matters to be carried out except by a body of men selected for the purpose?

THE CHITRAL CAMPAIGN.

THE wars and rumours of wars and the rapid succession of incidents that have occurred of late of a more or less exciting and unexpected character have tended to diminish, but not to obliterate, the impression which the dramatic series of exploits connected with the Chitral campaign made upon the public mind. It was, altogether, an expedition in which the European and native armies of India did excellent and brilliant service and dispiayed a spirit of pluck and fortitude of which any nation might feel proud. The nature and variety of the incidents and the difficulties that were so manfully encountered and overcome in the siege and relief of Chitral were well calculated to excite the imagination, and their history makes up a fine page in the military records of India. We are glad to say that the medical service took a worthy and important part in that campaign, and we sincerely congratulate those of its members whose services have been recognised by Her Majesty and whose names appear in the list of honours and rewards published in the *London Gazette*. Surgeon-Major-General Thomas Maunsell of the Army Medical Staff and Surgeon-Colonel George Thomson of the Indian Medical Service are made Companions of the Bath in the Military Division.

CHOLERA-INFECTED VESSEL AT HOLYHEAD.

THE steamship *Garlands* came into Holyhead on the 15th instant under stress of weather with the yellow flag flying. It then transpired that she came from the Black Sea with a crew of twenty-three men, and took in water at Constantinople. Four days after leaving Constantinople sickness set in, and by Jan. 11th there had been about ten cases of so-called severe diarrhœa, besides three of undoubted cholera, two of which had terminated fatally. The last death took place on Jan. 11th. Directly information as to the arrival of the vessel reached the Local Government Board, Dr. Theodore Thomson of the medical department was instructed to travel down by night mail; and on his arrival he, in coöperation with the medical officer of health and the deputy health officer and sanitary officials, advised as to additional measures of precaution and of disinfection. Several days having elapsed without any recurrence of illness amongst the crew, and no one being desirous of landing, the vessel was then, under the orders of the Local Government Board, free to continue her voyage to her destination—namely, Barrow-in-Furness. This incident shows that we are by no means free from the risk of a re-importation of cholera into this country. Russia is still somewhat widely affected by the disease, Asia Minor and the Levant are infected, Egypt is not yet clear of infection, and Constantinople was a seat of the disease during the last three months of the past year. It is not easy, on the information thus far available, to decide precisely what was the source of the infection in this case, but the persistent continuance of the disease and the large proportion of persons attacked tends rather in the direction of the theory of water pollution; so, also, does the commencement of the outbreak within a few days after filling up the water tanks at so suspicious a place as Constantinople. Happily, our cholera organisation was instantly on the alert, and all that was necessary was carried out without resort to vexatious restrictions.

A STUDY OF CHILDHOOD.

EVERY ONE who has read Professor Sully's "Studies of Childhood" must acknowledge the American child to be a subject worthy of study. But the following delicious production which we received from the medical man to whom it was sent shows, we think, that the child mind in this country is equally interesting. The letter is written upon small pink paper, ornamented with a picture of a pony, and we transcribe it *verbatim*, omitting only names and addresses:—

"Dear Dr. ———,—I would be very pleased if you would let me have a Baby for one guinea. We want it on The 4th of Febry for Mother's birthday. We would like it fat and Bonny, with blue eyes and fair hair. We Children are going to give it to her ourselves please answer at once.—Yours sincerely, ARCHIE ——."

"P.S.—Which would be the cheaper a Boy or a Girl?"

We commend this to the notice of Professor Sully. The P.S. is delightful, and who is there shall answer the momentous question? The age of the writer—the eldest child—we may add, is seven; and the letter, except for certain paternal instructions as to spelling, given without seeing the letter, is the unaided composition of "we children." We are honoured with the acquaintance of a young lady aged five who one day remarked, "Father, dear, why is our baby such an unpleasant, common little thing?" but this only shows from what different points of view children may look at the same thing. We fear that these children have not been instructed by "Baby Buds," or they would know that babies are not procurable by the mercenary method suggested by their letter, but it shows that the real child is still with us.

THE DUNSTABLE TOWN COUNCIL AND THEIR MEDICAL OFFICER OF HEALTH.

SOME members of the town council of Dunstable have odd notions as to the post of medical officer of health. When the late health officer's term of one year for which he had been elected came to an end, the town council met to fill up the vacancy, and then some curious views were enunciated. One councillor said that as there were several medical practitioners in the town "the office ought to be shared all round"—in other words, it ought first to be bestowed on one and then on another. This view received support even from one who had reached the responsible position of an alderman. This gentleman did not care whether the appointment was made for one year or for five, but he did hold that the office should be "fairly shared in rotation." It is hardly conceivable that those who are presumably men of business and experience, and who are acquainted with the public matters with which they have to deal, can enunciate such a doctrine as this. Do these gentlemen change their managers or those who, in other capacities, have charge of their interests once every year or every five years, so as to give every other suitable person in the town a turn? Do they by any chance turn out their legal adviser every year? It is, indeed, the first time

we ever heard such views expressed, and we are certain that if effect were given to them the damage done to those great interests which are involved in public health questions would be irretrievable. But the alderman announced that the post of medical officer of health was a sinecure, and this is, we expect, the secret of the curious views which are held by some of the notabilities of Dunstable. If this post is ever a sinecure we must blame the miserable salary which is intended to serve as a hint that no work is expected or wanted, or the fact that the medical officer of health never receives the support of his council when he advises as to action that should be taken. What the precise cause of the alleged nuisance is in Dunstable we do not know, and, since the Mayor and Mr. Councillor Perkins did their best to save the reputation of the council, we need not inquire whether the statement is correct or the reverse. The former urged the reappointment of the present officer, and the latter pertinently asked whether people usually discharged their servants just as they became accustomed to their work, and in the end the council were unanimous in re-electing Mr. Morcom for one year only.

THE LONDON POST-GRADUATE COURSE.

DURING the spring term, which will commence on Monday, Feb. 3rd, there will be classes at Moorfields (Eye), Blackfriars (Skin), Bethlem (Mind), Great Portland-street (Throat, Nose, and Ear), King's College (Bacteriology), Cleveland-street (General Medicine and Surgery), Parkes Museum (Public Health and Hygiene), and at the Institute of Preventive Medicine (Urine Testing). The hours at which the lectures are to be given will all be in the afternoon and evening, so that the practitioner can attend. The fees are payable for single courses, and are from 1 to 3 guineas each. Early entries are desirable so that the classes may be formed. During 1895 nearly 200 practitioners attended. They came from all parts of the Empire and from the most distant countries of the world. A central building, which would naturally aid in the organisation and multiplication of the classes and extension of the work, has become a necessity and is in contemplation. Entries will be received by Dr. Fletcher Little, secretary, 32, Harley-street, W.

OUR EPILEPTIC COLONY.

COMMONLY the accepted gauge of success in colonising is the measure of commercial profit. There is, however, one exception to this rule. It is the case in which the colonists are epileptic. Establishments like those of Bielefeld, Chalfont, and the American colony in Tennessee must be judged by another standard. In them the return from land, or even from work, is not calculated in money alone. This form of advantage, indeed, is not forgotten, but it is not the one or even the first consideration. The farm is before all things a training school designed and administered on sanitary principles. It is a hospital planted out in cottage fashion, partly self-supporting, but mainly dependent, as it needs must be, upon public or private charity. It is chiefly as a therapeutic enterprise that it now claims our attention. Viewed in this light it possesses a great and peculiar interest. Furthermore it is only necessary to examine the reports published from time to time respecting the German institution which forms the prototype of its class in order to prove success by the results of wise and careful treatment. The respectful flattery of imitation has not been wanting to it, and the work done for thirty years in a Westphalian village has been reproduced on a varying scale not only in Germany itself, but in Great Britain, America, Holland, and Switzerland. In THE LANCET of Nov. 17th, 1894, we published a detailed account of the epileptic colony recently founded at Chalfont, in Buckinghamshire. The marked improvement in the health of these invalid settlers was only what might have been expected under their greatly improved vital conditions. Their efficiency as cultivators afforded the most gratifying proof of this improvement, and the fact that the attainment of these desirable ends was found to be compatible with a noteworthy economy in expenditure ought to reassure any who may still be disposed to doubt the wisdom of aiding with their means this new departure in the treatment of disease. We feel confident, therefore, in supporting the appeal issued a few days ago on behalf of our national colony by the chairman of the executive committee. A sum of £1200 received up to the date of that request has been found altogether inadequate to the purposes which the committee have in view. It certainly seems exceedingly meagre compared with the annual subsidy of £30,000 allotted to Bielefeld in a much less wealthy country than our own. We feel assured that the present difficulty need only be mentioned in connexion with a work so deserving and so fruitful of good as we have shown this to be in order to open more widely the justly-generous purse of the British public.

BOILER EXPLOSIONS.

OUR remarks upon the Board of Trade report on boiler explosions, issued about this time last year, apply with fresh, and even greater, force to the report just recently issued. In the report issued in 1895 the total number of boiler explosions investigated was 104, of which 21 occurred in the case of domestic heating apparatus. In the report now before us the total number of explosions investigated was 114, of which 27 were due to domestic heating appliances; so that the number of cases inquired into shows a small increase upon the number recorded in the preceding year, while the number of persons killed and injured is larger than in any year since the Boiler Explosions Act came into force. This increase, however, was due to some exceptionally serious accidents at industrial works, and an unusual number of domestic boiler explosions consequent upon a prolonged period of severe frost. The latter accidents were, in the main, the result of undue pressure in the boiler arising from the freezing of the water in some part of the apparatus. The lesson is taught afresh, therefore, of the need of measures to prevent such occurrences. We believe this would be amply met by the use of a safety-valve placed in a convenient and accessible recess so as to permit of inspection and testing from time to time. So far the present winter has, happily, not been very severe, and should it continue without a "cold snap" such as we experienced in the previous season we may hope to find a complete absence of accidents and disasters in the next Board of Trade report. But then, such a satisfactory result ought to serve as a lesson of equal force as when disaster happens, and it must be borne in mind that the foretelling of weather is not at present an exact science.

THE SMALL-POX EPIDEMIC AT GLOUCESTER.

THE Gloucester Board of Guardians, who do not enforce the Vaccination Acts, discussed at their meeting last week a minute of a special meeting of the sanitary committee of the City Council, which stated that the number of cases of small-pox in the Infectious Diseases Hospital was thirty-six, that others had been notified, and urged that vaccination should be enforced as the only means of staying the epidemic. After a long discussion the board passed a resolution recommending parents to have their unvaccinated children immediately operated upon, and stating where this vaccination and the revaccination of adults would be performed. The action of the sanitary committee was influenced in an effective manner by the resolutions passed at a meeting of the members of the medical profession of Gloucester held on the 16th inst., on the invitation of the committee to advise

as to the steps to be taken in regard to the outbreak of small-pox. Dr. Batten was in the chair, and twenty-one other medical men were present at the meeting, which unanimously expressed an opinion that the accommodation for infectious diseases should be at once increased, that "successful" vaccination in early life and revaccination at a proper interval afterwards is the only available means of protection against an attack of small-pox, that the guardians should be urged to comply with the provisions of the Vaccination Acts, and that a house-to-house visitation should be made to prepare lists of unvaccinated persons with a view to ensure their prompt vaccination. Owing to the refusal of the guardians of late years to enforce the Vaccination Acts as well as to anti-vaccination propagandism in the city, Gloucester has rivalled Leicester in regard to its neglect of vaccination. The last published returns (1891) give as many as 84·7 per cent. of "children not finally accounted for." It is significant that the board of guardians to whose neglect of duty this state of things is due should, in the face of small-pox actually invading the city, have awakened to a sense of their responsibility, but it will require very energetic action indeed to prevent widespread suffering amongst the children if the disease should gain a foothold. We cordially congratulate Dr. Batten and his fellow practitioners upon the prompt manner in which they responded to the appeal made to them by the sanitary authority.

THE REVOLVER AGAIN ON TYNESIDE.

THOMAS DIXON, a steel-worker aged twenty-two years, is in custody charged with murdering Alexander McLaren and Robert Anderson, and with inflicting serious wounds upon two other young men, at Jarrow-upon-Tyne on Saturday night last. It appears that Dixon purchased a revolver on Saturday afternoon, that during the evening he was drinking, and at 10 P.M. was in a public-house with McLaren. An altercation arose, and Dixon said he had a good mind to shoot McLaren, and upon McLaren replying, "Shoot away," shot him through the left chest and ran away. In the course of a very short time Dixon shot three other men, all of whom were unknown to him—Anderson, a youth aged twenty-one years, the ball entering his body just below the lower jaw on the left side and passing into the cervical spine; Smith in the shoulder; and Brewer in the face. He then attempted to shoot a man named Sloan, but was overpowered by him and disarmed. McLaren was taken to the Palmer Memorial Hospital, where he died on Sunday. Anderson was taken to his home, and also died on Sunday. Brewer is reported to be in a serious condition, and Smith is severely wounded. Before the magistrates on Monday Dixon said, "I can only say that I did not know what I was doing. I know nothing about the case." Superintendent Fleming told the magistrates that McLaren was intoxicated at the time he was shot, and it transpired during the inquiry that Dixon, too, was drunk. Is it not time that some restriction was placed by law upon the sale of revolvers?

POISONING BY SULPHURETTED HYDROGEN.

CASES of poisoning by sulphuretted hydrogen are comparatively rare despite the enormous quantities o this gas which are encountered in the purification of coal gas and in the recovery of sulphur from alkali waste. In the latter operation we have seen nearly a million cubic feet of the pure gas treated for its sulphur in one day. Dr. Haldane has found that the poisonous gas of sewers is chiefly sulphuretted hydrogen, and he contributes this week to our columns a very interesting article upon the subject, which is based upon the accident at the East Ham sewage works, by which five men met with their deaths. The odour of the gas betrays its presence in very minute quantities in the air, a quality which is in itself a powerful incentive to avoid inspiring it. Familiarity, however, appears to breed a sort of contempt for this otherwise repulsive smell, and to some extent certain persons, as, for example, analytical chemists, find it less disgusting, and their sense of smell becomes blunted to its presence, as they are accustomed to employ it day by day for analytical purposes. Oddly enough, when the gas is breathed undiluted, the disgusting smell is hardly evident, as we have experienced ourselves, and its effect upon the organism is most insidious, it induces a not disagreeable anæsthetic condition from which the subject may never be restored, and poisoning by sulphuretted hydrogen supervenes. We fear this must have been the result in a shocking occurrence reported this week. It appears that at the Tynemouth Gasworks, North Shields, three men entered a chamber containing sulphuretted hydrogen gas, with the result that they were rapidly overcome and rendered unconscious. In a brave attempt to rescue these poor fellows two other men were also rendered unconscious, and eventually succumbed in spite of every measure being taken to restore animation. Artificial respiration, however, succeeded with three others who had made attempts to enter the chamber. Recovery from poisoning by sulphuretted hydrogen is extremely uncertain, since the gas enters into combination with the alkali of the blood, acting upon the hæmoglobin much as carbonic oxide does, by preventing the appropriation of oxygen. It appears to be set free again in the lungs, the early symptoms of poisoning recurring. The patient may have every appearance of recovery, therefore, from its first effects, only to sink again, as has been known, an hour after the time that the poison was inspired. Beyond artificial respiration and the administration, if possible, of pure oxygen gas it is difficult to suggest any other means of restoring animation. Possibly the employment of air containing some iodine vapour would be of value, since this would decompose the sulphuretted hydrogen instantly. We trust, however, that every effort is made to minimise the risks of such ghastly occurrences as we have just recorded. The men employed in gas and alkali works know full well the danger of being "gassed," as they call it, and we sincerely hope that in the present case there was no negligence, although, according to the accounts we have read, it is stated that the men were unaware that sulphuretted hydrogen had by some means been allowed to accumulate in the chamber.

A MEDICAL VALHALLA.

THE names of military and naval heroes who lose their lives in battle against their own species are fittingly immortalised in records and on monuments all the world over, but a similar distinction is not always accorded to their equally heroic brethren who succumb while combating disease and death. In order to take away this cause of reproach, so far, at least, as their own institution is concerned, the authorities at Val-de-Grâce some short time since created a Hall of Honour where marble tablets for the commemoration of defunct medical martyrs could be erected and preserved. As may be supposed, the lists already inscribed are both numerous and lengthy, for French medical men have ever been renowned for devotion to duty under circumstances of difficulty and danger, but none of them, we should hope, can compare with the terrible death-roll now being prepared of the military medical officers who were cut off by yellow fever at San Domingo and Guadeloupe during the years X. and XI. (1801–3). After a painstaking research amongst the records of the Comité Technique de Santé the names of no fewer than fifteen physicians, 138 surgeons, and forty-five apothecaries who

thus perished have been rescued from oblivion, and will in due course be added to the Val-de-Grâce Valhalla. Most of this appalling mortality took place at San Domingo, only sixteen deaths in all having occurred in the other island. Our own military archives can doubtless furnish particulars of many gallant encounters with this most malignant of diseases, but we do not think that the French hecatomb could be equalled or even approached. Happily, in these days of improved sanitation and increased knowledge the dreaded "Yellow Jack," so fatal to our forefathers, has been shorn of most of his power.

SOCIETY OF MEMBERS OF THE ROYAL COLLEGE OF SURGEONS OF ENGLAND.

A MEETING of the executive committee of this society was held on the 16th inst. at which the following resolution was carried unanimously and ordered to be communicated to the medical journals: "The executive committee of the Society of Members of the Royal College of Surgeons of England desires to thank the Fellows most heartily for their recent vote affirming the principle of the direct representation of Members upon the Council; and the committee hopes that this vote will mark the commencement of a new era, in which Fellows and Members will work together for the good of the College."

THE PHYSICAL NEEDS OF NURSES.

MANY persons are apt to forget that in utilising the nursing services of others they owe to these latter some humane consideration over and above any regulated wage. It is a standing rule that attendance upon the sick should be arranged with due regard for such necessary claims on the part of nurses as those of rest and food. If these be overlooked it is hardly to be expected that the most dutiful efforts can be either wholly willing or fully successful. In wholesome recognition of this truth the authorities of Swansea Hospital recently decreed that nurses should receive one substantial meal while on duty overnight. The concession was not an extravagant one, but it appears, nevertheless, to have been reduced by the hospital executive to a tantalising minimum which rendered satisfaction impossible and contentment a crucial virtue. Shortsightedness of this description, unfortunately, is not unknown elsewhere than in Swansea. We have before this had occasion to direct attention to the neglect of the most ordinary regard for nurses' requirements in some of our parish infirmaries. Overwork everywhere implies not only great irregularity in the hours of meals but even the loss of one or more of these daily, and overwork thus illustrated is a familiar experience with parochial nurses. Such want of management as these facts display is discreditable to any system. It is equally to the advantage of patients and nurses that due provision should be made for the latter both as regards their meals and their timely rest; and the exercise of such reasonable care as will secure these ends should be possible under all ordinary conditions.

IMMIGRATION INTO TOWNS.

MR. ARTHUR BALFOUR, upon the occasion of his recent visit to Glasgow to receive the freedom of the city, referred to the problem of depopulation of rural districts. Emigration from the country is, he said, a natural law; "the pursuit of agriculture taken by itself cannot support a constantly augmenting number of individuals in a country already fully settled and where there are no waste lands to reclaim." Therefore they gravitate into the towns, where if rent is high food is cheap. Dr. Gairdner, writing upon this subject to the *Glasgow Herald*, points out how this urban immigration is the despair of social and sanitary reformers. He divides immigrants into three classes: (1) The efficient and self-supporting; (2) the exact opposite; (3) the intermediate class, who can sail with the stream, but not against it, who are affected for the worse by external influences, but who have potentialities for good. He concludes his letter by saying that he is sure that towns can be made healthy and fit for Class 1 without being allowed to degenerate into squatting places for Class 2, and without encouraging too much the growth of Class 3. The problem is exceedingly difficult. *Φύσει πολιτικὸς ἄνθρωπος*, said Aristotle long ago. Men will crowd into communities and always have done so, witness the rapidity with which the primitive Egyptian hermit became transformed into the monk living in community. It has been well said there is no solitude like that of a great city, and this, perhaps, is one cause of the attraction that cities have for the dregs of a population. In the country the criminal or would-be criminal is too well known, in a town he can pass unobserved; and this it is which keeps up the supply of Class 2. Dr. Gairdner gives us to understand that he has a method for bringing about the desirable results he formulates, and we can assure him that any reasonable scheme he may put forward will be of deep interest to us.

THE publication of *Teratologia*, a quarterly journal, edited by Dr. Ballantyne, has ceased from lack of public support. This is greatly to be regretted, as the two volumes already issued contained much valuable information on this important subject. It is to be hoped that the publication will not be allowed to die, but that Dr. Ballantyne may receive the names of sufficient new subscribers to justify him in resuming his interesting journal.

LORD WINDSOR has undertaken to convene a public meeting to establish a fund for the Cardiff College of the South Wales University in order to meet the conditions upon which the Government have promised £20,000 and the Drapers' Company of London £10,000.

THE Board of Agriculture have issued their annual report of proceedings under the Contagious Diseases (Animals) Acts. The report states cheeringly that at no previous period have the cattle been so free from these diseases as at present.

A SESSIONAL meeting of the Sanitary Institute will be held at the Parkes Museum on Wednesday, Feb. 12th, at 8 P.M., when Dr. S. Monckton Copeman will open a discussion on the Influence of Subsoil Water on Health.

A COMPETITIVE examination for seventeen commissions in the Army Medical Staff will be held on Feb. 7th and following days. Particulars thereof will be found in our advertisement columns.

LORD RAYLEIGH has accepted the post of Scientific Adviser to the Trinity House, which has been in abeyance since the resignation of the late Professor Tyndall.

INFIRMARY MEDICAL SUPERINTENDENTS' SOCIETY. The usual monthly meeting of this society was held at the Central London Sick Asylum on Jan. 18th, the President, Mr. J. R. Lunn, F.R.C.S.Ed., being in the chair. Mr. John Hopkins showed cases of Multiple Growths in Skin, Double Paralysis of Seventh and Eighth Nerves, Aneurysm of Innominate in Female, Charcot's Disease of Spine, Syringomyelia, Tubercular Dactylitis, Addison's Disease, Morphœa Herpetiformis, and Cranio-tabes. A discussion was raised by Dr. Harris concerning the Treatment of Refractory Patients. A vote of thanks to Mr. Hopkins for his interesting series of cases terminated the proceedings.

THOMAS WAKLEY,

THE FOUNDER OF "THE LANCET."

A BIOGRAPHY.[1]

CHAPTER IV.

The Influences of Youth and Training.—The Goodchilds.—Gerard's Hall.—Courtship and Marriage.—The Start in Practice.—Prospects in Argyll Street.—Fire and Attempted Murder.—A Digression Promised.

IT will not be amiss here to summarise very briefly the salient points in the home-life and education of Thomas Wakley, for the circumstances of his youthful bringing-up dictated his adult career in a very striking manner. Brought up in the country among a simple and patriarchal folk, he positively detested shams of all sorts. A pretender was to him the biggest rogue the world could know. As a member of a large family he was endowed with a deep sense of what was fair. He obtained his own share of whatever of material enjoyment or comfort was going by favour, for he was the youngest, and could not have exacted it from his elders; but he obtained it because it was freely recognised in Mr. Henry Wakley's house that share and share alike in common goods was the only fair plan. So that there was early implanted in his breast a keen sense of rudimentary justice—that crude kind of socialism so often seen in children—only developed to an extraordinarily high degree. He desired that everyone should have his due, and in his student days this desire had developed to such a degree that towards all who belonged to classes whose manners or methods he found oppressive he could scarcely bring himself to be impartial. He had been brought up in an atmosphere of obedience as well as of equity, so that the privileges he obtained at home were the return of allegiance given. From a domestic environment of this sort he went to a London hospital, and found a condition of things that was directly at variance with all his primitive and deeply implanted ideas of fair-play. He found that although he was allowed to do his part—viz., pay his fees and attend his classes—the authorities were not prepared to do their part by him. The lectures advertised were not delivered by the eminent people who received the fees, but by their demonstrators; the one great practical help to the acquisition of a sound knowledge of pathology—viz., presence at post-mortem examinations—could only be secured by the clandestine feeing of the post-mortem-room porters; the honorary staff from whose lips he was to learn the science of healing were capricious in their visits and were generally dumb upon the occasions when they put in an appearance; the list of operations was not published to the students, and only the favoured pupils of the staff knew what was going to be done by the great men and when. And, to cap all these injustices, he found that he was relegated to a class in his profession marked out from the beginning to constitute the rank and file, not in the least through want of personal merit, but because he had not paid exorbitant fees to apprentice himself to a great man. He had no objection to being a general practitioner; on the contrary, he desired to be. He had lived for three years in the house of two hard-worked members of this class. He had shared their labours and known their trials. He could estimate—no one better—the amount of good that they did and the amount of influence for good that they were able to exercise over the community. He saw these men, who did their duties for the most rigidly according to their lights, always set on one side and looked down upon by their privileged brethren, who had themselves obtained their places in the medical hierarchy by purchase and not by merit, and who, being in posts of office, took the emoluments and omitted to do the work. These things he saw; his sense of justice revolted at them, and none the less because he personally suffered from their effects, and these things sufficiently account for his attitude towards hospital officials, for his readiness to find them wanting in skill, and his pertinacity in convicting them of unfairness and nepotism. His championship of the cause of the general practitioner was as obvious in its origin as it was outspoken in its activity.

Lastly, as a member of the public he held that the public were unfairly treated; for the students, whose instruction was carried on in such a haphazard manner, were subjected to no properly stringent tests before being turned loose to earn their living as best they might. (This is not a decrying of our professional grandparents, but only a claim for the rank and file of them that wherein they did well they did it by their own exertions and to gratify their own feelings of what was right, and not in response to liberal assistance from the hospitals to which they had paid fees or to searching examinations by the colleges to which they belonged.) Against the injustice of all this the righteous anger of Thomas Wakley found vent. He was a reformer in the large sphere of constitutional politics, but in medical politics he was an avenger. He represented the wrath of the profession as a whole against the mismanagement of their leaders, and the wrath of a member of the public against a profession that allowed itself to be so mismanaged.

It was in this mood that Thomas Wakley arrived home in the character of a qualified man. His primary intentions were to practise in the country, and he stayed for some months at Membury after being qualified, during which time he was in search of an opening. He made many friends in the neighbourhood during this his first real vacation, and that he impressed them favourably is well shown by the generous response that Devonshire and Somersetshire friends were wont to make for many years to his appeals in the columns of THE LANCET—and this in cases where it could only have been the personality of the editor and not at all the urgency of the appeal, that swayed them.

His wish to get speedily into practice was enhanced by the fact that he desired to become the favoured suitor of an attractive young lady whom he had known during the last year of his student life, although he could not be said to be strictly and formally engaged to her. He had, however, obtained from her father a sort of qualified approval of his suit, accompanied with some very clear words as to the responsibilities that he would be expected to assume upon marriage. For Mr. Goodchild, the father of the future Mrs. Wakley, though a wealthy man, stated that he had no intention of supporting a son-in-law, but that his daughter's husband must maintain himself and his wife by his own labour.

Mr. Goodchild was an excellent specimen of the wealthy merchant at the time. His warehouses and offices were in Tooley-street, and his home was at Hendon, then situated four miles inside an area that was absolute country, being considerably less accessible to the true Londoner than Guildford, Windsor, and even Hertford are now. He was a lead merchant, and a man of great wealth, and large business connexions. Young Wakley made the acquaintance of the family by accident. The men in the Tooley-street works were very constantly in need of the services of the adjoining hospitals. Mr. Goodchild was a governor of St. Thomas's Hospital and a regular annual subscriber, but not to the extent that his great income would have warranted the hospital authorities in expecting, or to the extent that was proportionate to the labour that was expended upon the

[1] Chapters I., II., and III. were published in THE LANCET of Jan. 4th, 11th, and 18th respectively.

care of his numerous workmen by the medical officers of the charity. He employed at that time a very large number of hands—two or three hundred,—one or two of whom were almost daily in receipt of surgical assistance. The treasurer of St. Thomas's Hospital, to whose attention this was brought, sent young Wakley and his friend Wiltshire to call at Hendon and ask Mr. Goodchild whether he felt disposed to support in a special manner a special appeal that was being made on behalf of the hospital, having regard to the fact that his workmen were so largely benefited by their proximity to the building. Mr. Goodchild not only made a generous response to the lads' appeal—he gave them a £100—but invited them to luncheon and, later, to a party at his house. The acquaintance thus made ripened into friendship, and the friendship between the youngest daughter and Thomas Wakley soon became subject to the natural transformation into love. It says a great deal for the influence that young Wakley had over those whom he desired to move and please that he should have obtained Mr. Goodchild's consent to an early, if conditional, engagement, for although he was not accepted as a suitor for Miss Goodchild's hand while still a student, yet he was accepted almost immediately upon becoming qualified, and when he had no remarkably good chances of prosperity and no expectations from home. He was one, and the youngest, of eleven children. To the eldest son the land would infallibly go. If he shared equally with the other nine it was all that he could expect. Probably he would be considered to have received his patrimony when his indentures and his London course of study were paid for. From a worldly point of view, therefore, he could not be considered a good match. He had his youth and his profession, and that was all. But Mr. Goodchild was a judge of men, and he saw in the young man the stuff of which success is made, though he did not guess the direction whence that success would come, and for a time at least cordially disapproved of those very departures that made his son-in-law a man whose biography has to be written instead of a family practitioner. It was probably with some idea of asserting his independence that Thomas Wakley thought of setting up in practice in his own part of the world. There the esteem in which his father and family were held would be some sort of counterpoise to the wealth of the prospective father-in-law. Be that as it may, the idea came to nothing, for in 1818 he returned to London and went into private practice in the City.

He lived at this time, and had done so for one year, in Gerard's Hall, an old residential inn, and before the Fire of London the palace of the Lord Mayors of London. It possessed a remarkably fine crypt used as a cellar, and stood in Basing-lane on a site that was afterwards cleared in the construction of Queen Victoria-street. Thither he returned and proceeded to look about him for patients and a practice, occupying himself in the meantime in completing the gaps which he felt to exist in his education. The testimony of Mr. Ivatts, the proprietor of the Hall, to his behaviour while he was that gentleman's tenant shows that, so far from feeling that because he was no longer a student he had earned the right to cease from work and consider himself a completely informed man—a very common attitude with the newly-fledged medical man—he doubled his energies and spared no pains to learn. He was an ambitious, able, enthusiastic young lover, and intended to leave no stone unturned in his struggle to deserve his wife and support her. Mr. Ivatts had occasion under distressing circumstances that will soon be narrated to make a statement upon oath as to the manner of life pursued by Thomas Wakley at this time, and he then said that he was particularly regular in his mode of living, temperate, keeping much to himself, and exceedingly studious, rising at three and four o'clock even in the winter to read and write. It was often a matter of wonder in later times to his enemies and friends alike, where he had got his great store of information from, and how he came from his earliest start on a journalistic career to control so adept as well as so virile a pen. It was to the rigid self-denial of his life in Gerard's Hall that he owed both. For hours each day—hours snatched from the sleep that was due to his labours—he steadily worked, reading copiously and writing assiduously, and it was thus that he acquired the solid learning and literary skill which enabled him to become a champion in journalism from the moment that he entered the lists.

During the following year an end was put to his period of probation, and he was assisted by Mr. Goodchild, now satisfied that in Thomas Wakley his daughter would find a man capable of taking care of her, in acquiring a West-end practice. The practice lay at the top of Regent-street, and his predecessor, Samuel Malleson, in disposing of it did not desire to dispose of his house also. Mr. Goodchild arranged that Wakley should take a house in Argyll-street, No. 5, which was hard by Mr. Malleson's house, and should purchase that gentleman's drugs and the furniture of the surgery and transport them thither. This was done; but the exact money consideration for which Wakley was indebted to his future father-in-law upon these transactions is not known. The sum of £400 was paid for the goodwill of this practice, and a similar sum as premium on the lease of the house in Argyll-street, then a fashionable and important street—and more money was paid both in Argyll-street for the fixtures and to Mr. Malleson for his stock and sundry furniture, so that £1000 would probably not have covered the immediate outlay. Mr. Goodchild was, however, a business man, and cannot be said to have made a bad investment, having satisfied himself that his future son-in-law was a trustworthy and competent man, for, of course, everything turned upon that. The practice that was obtained for £400 cash had brought in Mr. Malleson £690 during 1818, and by the autumn of 1819, when it was purchased, £560 had already been earned.

Argyll-street was then a street of reputable private residences. The town house of the Earl of Aberdeen shed an aristocratic flavour over the eastern side, and most of the inhabitants were persons of consideration if not wealth. No. 5 was a house of fifteen rooms, including the back study, which was used as a surgery, and was of the type and date of the houses now standing in the older parts of Maddox-street. It had a double dining-room and a double drawing-room and half-a-dozen bedrooms. This house its new possessor set to work to furnish handsomely, and those of us of this generation who are sufficiently modern to have begun to appreciate again the beauty, as well as the solidity, of the effects with which our grandparents delighted to surround themselves, know that the style of upholstery in the twenties was not an economical one. It is probable that Thomas Wakley would not have equipped his rooms so lavishly had he not been preparing for the almost immediate reception of a wife, but imposing externals were every whit as valuable then as they are now in forming a good connexion, and Mr. Goodchild's sure commercial instinct would have certainly gone in support of a somewhat lavish expenditure. From the first the venture was a successful one. The young practitioner retained the old patients who had been transferred to him, and new ones called him in both in the neighbourhood and in the City, and when in February, 1820, he brought his wife home he did so with every prospect before him of a successful career in general practice. He was married on Saturday, Feb. 5th, 1820, at St. James's Church, Piccadilly, and the announcement of his wedding, as it appears in *The News* of Feb. 6th, takes us back an enormous stride in history, for the same issue informed the world of the death of King George III.

The temptation at this point to write in the style of the dime novel, that the fair horizon of the young couple would soon be terribly overcast, is very strong, for the old contrast between present security and sad trouble in the immediate future was never more dramatically exemplified than in the case of Thomas Wakley's early married life. In February he brought his young wife to her new home. His marriage was one of affection, but also one of material advantage to him, while his prospects in his professional career were exceptionally bright. Young, talented, good-looking, healthy, a married lover, and a successful man, he was beloved by his friends and respected by all with whom his profession brought him into relation. In six months his home was broken up, his house burnt to the ground, his health seriously injured, his practice well-nigh destroyed, and last, but most serious of all, his reputation was gravely impugned, the slanders that were rife about him being as wide-spread as they were malignant.

On the evening of Aug. 26th, 1820, No. 5, Argyll-street, was burnt to the ground, while a murderous attack was made upon the hapless owner. The extraordinary as well as terrible events that occurred on that night will have to be dealt with at some length, and to place them with perfect clearness before the reader a digression must be made, and circumstances in the Cato-street conspiracy and the execution of the infamous Thistlewood must be detailed at the risk of appearing to give information upon matters of historical notoriety.

(To be continued.)

Pharmacology and Therapeutics.

THE SALTS OF STRONTIUM IN ALBUMINURIA.

THE salts of strontium are said to often cause a notable and rapid diminution of albumin. They are also indirectly useful by aiding digestion and acting as an intestinal antiseptic. According to Constantin Paul strontium is only useful in the parenchymatous forms. It is in cases of albuminuria where it is useful to moderate the loss of albumin that the use of strontium is specially indicated. The formula recommended by Gaucher and Gallois is—lactate of strontium, 50 grammes; water, 375 grammes; three tablespoonsful—i.e., six grammes of lactate of strontium—a day.

TREATMENT OF NIGHT SWEATS OF PHTHISIS.

M. A. von Székely recommends cotoine as being very useful in checking night sweats of phthisis, which he gives in doses of about 4 centigrammes. Cotoine is obtained from Coto bark, and may be in the form of a pale yellow amorphous powder or minute, curved, crystalline prisms, non-volatile, slightly soluble in water, soluble in alcohol, ether and chloroform, caustic and carbonated alkalies. It has a bitter taste. It may be given in the form of a solution or be made up with sugar into cachets. M. A. von Székely also employs tincture of belladonna in combination with liquor arsenicalis, and considers this combination to be more successful than preparations of belladonna alone. Externally, a lotion for the body may be used with advantage, as hydrate of chloral, 6 grammes, and distilled water and alcohol, each 100 grammes.

TREATMENT OF EPILEPSY BY SOLANUM CAROLINENSE (HORSE-NETTLE).

Dr. C. S. Potts gives an account of some cases treated by this drug in the *Therapeutic Gazette*. In seventeen cases in which a fair trial was given twelve showed more or less improvement, while the other five (two of them organic) showed no improvement. The general conclusions arrived at by Dr. C. S. Potts were:—(1) That the drug has a decided influence for good upon the epileptic paroxysm; (2) that this influence is probably not so great or so sure as that obtained by the use of antipyrin and the bromide salts, or even of the mixed bromides; (3) that in those cases in which it is of service it relieves the paroxysms without causing other unpleasant symptoms, such as are sometimes caused by the use of large doses of the bromides; and (4) that the dose ordinarily recommended (ten to fifteen drops of fluid extract) is too small, and that as much as a teaspoonful or more four times daily is often needed to secure results. No unpleasant effects from the drug were observed excepting a mild diarrhœa in some cases.

VINEGAR AS AN ANTIDOTE TO CARBOLIC ACID.

Professor Carleton of New York states that vinegar is an excellent antidote to phenol. When applied to a cutaneous or mucous surface which has been burnt by the acid the characteristic whitish appearance produced by the caustic at once disappears and subsequent scarring is to a large extent prevented. Vinegar is also said to be equally good as an antidote when the acid has been taken into the stomach, and it is recommended that the patient should as soon as possible drink some vinegar mixed with an equal part of water, after which other measures may be taken to more fully counteract the poison.

THE ASHANTI EXPEDITION.

THE British expedition to Ashanti has entered Kumasi without opposition, and another of our small wars has been brought to a successful issue, and on this occasion without bloodshed, although the lamented death of Prince Henry of Battenberg has detracted from the perfect smoothness and success of the expedition. It now remains for us to make such terms with the Ashantis as will prevent all probability of our having to undertake a succession of such expeditions in the future, and will put an end to their invasion of neighbouring territories with the slaughter of the tribes and people friendly to ourselves. There is nothing in the soil or climate of Ashanti, or the semi-savage race inhabiting it, or, so far as we know at present, in the natural products of that country to make it a desirable British possession; but we are, nevertheless, bound to protect ourselves against recurring incursions and expensive expeditions in the future. It will also be possible, we hope and believe, to put an end at the same time to the human sacrifices and gross cruelties that have so long been practised in this part of the world. The way in which the expedition has been designed and carried out is deserving of great praise. It shows that nothing has been overlooked or neglected which our previous experience as regards war in, and knowledge of, that country had shown to be necessary or desirable. The undertaking has been so far carried to a successful issue with an almost scientific precision with respect to the calculation of the time required. There has been no hitch in the arrangements as to the organisation and working of the transport, the commissariat supplies, the medical and hospital services, and the labours which had to be undertaken and accomplished by the Royal Engineers. The expedition forms an excellent object lesson of what can be done under seemingly very adverse conditions by the exercise of forethought and timely provision. The work has been accomplished by selecting the proper season for carrying it out and by fulfilling all the essential requirements for its success. There were only three officers and fifty-one men of the expeditionary force in hospital at Kumasi and the troops are stated to be in excellent spirits; indeed, cricket matches were being talked of by the troops. There was, of course, no loss of life from fighting as on the previous campaign, but the great risks that had to be encountered were those to health, and the difficulties were those of transport, food, water-supply, and engineering. The results as regards the preservation of health are highly creditable to the medical service. Kumasi is reported to be built on a good site, but, apart altogether from any unhealthiness of climate, the total neglect of all sanitation of even the most elementary kind in the town (which mainly consists of miserable native huts) the remains of dead bodies, the surface filth, and the presence of burial grounds, have created a foul state of the soil, of which bad smells are sufficient evidence. European troops occupying such a site are not likely to escape disease, and we may be sure that every effort will be made to expedite matters, and to place the force in the meantime in the best practicable positions. We may assume that the troops from this country

will be re-embarked as soon as practicable, and that the force left behind in Kumasi will be mainly composed of Houssas, with possibly a detachment of the West India corps, and that these will occupy some well-protected or fortified post armed with Maxim guns. It is quite possible that subsequently some elevated and healthy site may be found available for a military force in the vicinity of Kumasi.

(FROM OUR SPECIAL WAR CORRESPONDENT.)

Fosu, West Coast of Africa, Dec. 22nd, 1895.

HOPING to waylay an official postman going south to the coast, I sit down to write you from this native village, only some eighteen or twenty miles from Prahsu and fifty-three from Cape Coast Castle, on the road to Kumasi, Ashantiland, which place I have reached with my eight hammock boys and nine carriers, all well, I am happy to say, so far. The trip up has taken some eight days to accomplish, and been undertaken under climatic and other conditions little understood by folks at home. I received permission from the authorities to accompany the advance force of Engineers and Housas to Prahsu, but could not get away until past 8 A.M., by which time the sun was well up, so that we—my hammock boys and I—had, what we might reasonably have expected, a scorching hot time of it. The delay in getting my men off as early as I should have done was no fault of mine; Government had secured all the bearers, some five or six thousand. They want even more.

On account of the great cost as well as difficulty of transport of even the barest necessaries of life, the Commander-in-Chief had decided to give no rations of any kind to the war correspondents this side of Prahsu, or a point about halfway between Cape Coast Castle and Kumasi. I, like others in a similar predicament, have therefore been called upon to buy beforehand and carry with me everything I required for the journey till the time comes for all the rest of the troops to arrive and we cross the river in question.

The Government rate of pay for all labourers employed has been fixed at 1*s*. 3*d*. each per diem. Of this sum every man has to be given by the officer in charge or private employer 3*d*. in the silver coin of our realm daily to provide himself with rations, whilst the remaining shilling is withheld for very obvious reasons. But when our stock of ready money is exhausted what will happen? Will he, our *fidus Achates*, desert us in the African forest when he finds us bankrupt and his dole not forthcoming, or commit some other revengeful act? The negro is fastidious to a nicety where money is concerned, for he declines nowadays to deal in copper at any rate of exchange, and would consider himself grossly insulted if you were to offer him a penny for the most trifling of his wares you might require. But, taken on the whole, the Fantiman, although somewhat exacting and punctilious in his bargains, is by no means a bad sort of fellow after all. Externally, anatomically considered, he is as fine a specimen of humanity as one might well desire to inspect. Proportionally well made, with a muscular development betokening immense strength with great agility, he becomes at once an object of surprise as well as interest to all who see him for the first time on his native soil. He is an excellent pedestrian, for with a head load weighing some 50 lb. or 60 lb. he can do his twenty-five or thirty miles a day, and some have accomplished even more, and this, too, with bare feet and over by no means good roads. He is an early riser, is quite content to start on his journey with an empty stomach, but after going some five or six miles lets his employer or fare know by explicit and unmistakable signs that he has gone far enough and his stomach is empty. It is of small use your laying out a plan to go to such a point before stopping without consulting first with your head native man, for if you do you will be sadly disappointed, and, in spite of all your threats or remonstrances, find your hammock suddenly lowered and yourself shot out into the road before you are capable of realising the ridiculous position you occupy in the arrangement betwixt yourself and your hammock men.

To return to my start from Cape Coast Castle. When a good deal of wrangling between my headman and the carriers had been got through—this being the usual prelude to a start—I got into my hammock, which, swaying from side to side and suspended as it is from a bamboo pole, rested on the woolly craniums of four admirably sized, well-knit, muscular, polished, ebony-coloured negroes. This novelty in locomotion produces, they say, in some cases a sensation akin to incipient sea-sickness; the disagreeable feeling soon wears off, however, and is succeeded in turn by one of extreme drowsiness, ending in comfortable sleep. My hammock boys, as upright as any adjutants, swung forward with a rhythm of pace and regularity of movement perfectly marvellous to behold, whilst their merry laughter and incessant chatter, ever and anon exchanging jokes with their fellows in the rear, lent additional interest to the journey.

About five miles out, descending by a somewhat narrow, umbrageous path, we passed beneath several clusters of gigantic bamboos, growing to a height of 100 ft. into a dark green dell where the rays of a bright, tropical sun must have ceased to penetrate for years past, and then crossing over some dark-brown, muddy-looking stagnant pools bestrewn with broken and rotting pieces of timber, we emerged from this swampy, sickly, malarial-looking spot with serious misgivings as to its effect upon our health hereafter. Hastily pressing forward, we were glad enough to escape from this fever den, and, ascending by a narrow path flanked on both sides by prolific African vegetation, finally reached the summit of a more healthy looking plateau, where we came upon a genuine native village, with its irregularly built collection of mud huts, and as our men were tired as well as hungry, made this spot our first resting station for the day.

Prahsu, 3 P.M., Dec. 23rd, 1895.

Have just arrived here with my hammock boys, all fit. Find the officers and men also well, there being only two cases of slight fever in the hospital erected at this place. I examined the water at all stopping places and have found it much better than I had been led to expect.

THE LONDON UNIVERSITY.

A MEETING of Convocation of the University of London was held at Burlington House on Tuesday last for the purpose of discussing the question of the reconstitution of the University. Mr. E. H. Busk presided.

In opening the proceedings the Chairman alluded to the death of the Vice Chancellor, Sir Julian Goldsmid, and a resolution recording the deep feeling of the House for the loss sustained was unanimously adopted.

Dr. Silvanus Thompson moved the report of the annual committee. This was seconded by Mr. Tyler and carried.

On the motion of Dr. Silvanus Thompson, seconded by Mr. Cozens Hardy, Q.C., the following resolution was adopted in substance by the annual committee:—

"That this House desires the early introduction into Parliament of a Bill for the reconstitution of the University similar to that introduced last year by Lord Playfair, but with an inserted clause securing to the Senate, to Convocation, and to other bodies affected the right of appeal to the Privy Council on any of the provisions which may hereafter be settled by the Statutory Commission."

As an amendment Dr. Napier moved the following:—

"That all the words after 'that' be omitted, and in their place the following be inserted: 'In view of the fact that Convocation numbers about 4000 members, most of whom are precluded by their avocations and distance from town from attending a meeting in London, and of the desire recently expressed by the Lord President of the Council to ascertain the opinion of country graduates, it is inexpedient for this House to express any opinion as to the desirability of legislation for the reconstitution of the University of London until, in compliance with the desire of the Lord President of the Council, the views of all members of Convocation have been ascertained.'"

Dr. W. J. Collins, supporting Dr. Napier's amendment, felt that it was a prudent one.

Dr. Sansom and others also took part in the discussion.

On a division the figures were as follows:—

For the amendment	240
Against	466
Majority against the amendment ...	226

After some discussion as to the adjournment of the House Dr. Thompson's resolution was agreed to without a division.

The House then adjourned.

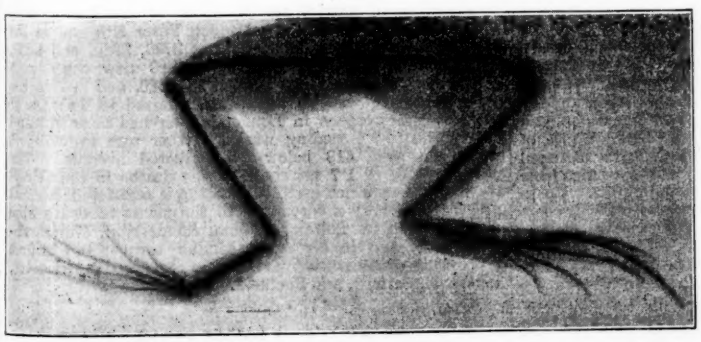
INCREASE OF STIPEND OF A MEDICAL OFFICER OF HEALTH.—The city council of Norwich at its last meeting resolved, by an unanimous vote, to increase the salary of their medical officer, Dr. Cooper-Pattin, from £400 to £500 per annum.

THE NEW PHOTOGRAPHY.

WE are pleased to be able to present to our readers in this issue two reproductions from photographs of (Fig. 1) a human hand, and (Fig. 2) of a frog taken by means of the radiations from a Crooke's phosphorescent tube, actuated by a so-called high-frequency current (a current of high pressure and periodicity). We are indebted to Mr. A. A. C. Swinton for the use of the powerful apparatus in his laboratory at 66, Victoria-street, S.W. Both the frog and hand were placed upon an aluminium sheet, resting upon a rapid dry plate in position in the ordinary dark slide. While aluminium is transparent to these particular radiations it is proof against ordinary light. The exposure in the case of the frog was nearly twenty minutes, but probably a shorter exposure would have been better. The hand was exposed for about four minutes and a half. The negative was developed in the ordinary way, and bromide prints were obtained from it by Mr. G. Stanton. The fact that the accompanying illustrations were reproduced by "process" is sufficient evidence of the distinctness of the original. We doubt not that as the details in the experimental manipulation are improved the results will be brought still nearer perfection.

FIG. 1.

FIG. 2.



INTERNATIONAL PERIODICAL CONGRESS OF GYNÆCOLOGY AND OBSTETRICS.

THE second session of this Congress will be held at Geneva during the first week of September, 1896. The list of names is a comprehensive one, and the subjects chosen are such as are likely to promote profitable discussion. Members of the Congress desirous of taking part in the discussions of the questions of the official programme should inform the secretary before July 5th, 1896, stating definitely the questions they desire to discuss. Original communications must be forwarded, with the complete explanatory title of the same, to the secretary before May 5th, 1896. Oral or written communications must be in English, French, or German.

The General Secretaries are: Dr. Betrix (Gynæcology) and Dr. Cordes (Obstetrics). Treasurer of the Committee: Dr. Bourcart. Secretary General for Great Britain (through whom all correspondence and business will be directed): Dr. Leith Napier, 67, Grosvenor-street, London, W. President: Professor Vulliett, 18, Avenue Du Mail, Geneva, Switzerland. Arrangements are being made by the Committee of Organisation to assist members of the Congress and their families to combine their journey to Geneva with excursions in different parts of Switzerland.

ISOLATION AND SCARLET FEVER MORTALITY IN LONDON.

THE *Times*, in a recent article on Infectious Diseases in London, called attention to the marked increase in the number of cases of scarlet fever lately treated in the Metropolitan Asylum Hospitals, with special reference to the rate of mortality from this disease in London in recent years, and asserted that isolation is probably "far less efficacious in controlling scarlet fever than is generally hoped and believed." This conclusion, in view of the serious cost of our isolation hospitals, is one which should not be accepted without careful and exhaustive examination of all aspects of the question. The decline in the London death-rate from scarlet fever has been remarkable and continuous during the past thirty-five years. The rate per million, which was 1133 in the ten years 1861–70, fell to 600 in 1871–80, and further to 335 in 1881–90; while in the first five years of the current decennium the rate has further fallen to 239. We are at a loss to see that these figures afford any support to our contemporary's assertion that "it looks as if scarlet fever were going to prove more fatal in 1891–1900 than in 1881–90, when the proportion of cases isolated was less than half the proportion now isolated." In spite of an undoubtedly epidemic tendency of the disease in 1892 and 1893, the rate of mortality in the five years 1891–95 did not exceed 239 per million, and was below the rate in any preceding five years on record. It is difficult to see in these figures any evidence of the failure of isolation. May we not rather attribute the practical abolition of scarlet fever epidemics in London in great measure to the increase and improvement of isolation? During the ten years 1861–70 the annual death-rate from scarlet fever five times exceeded 1000 per million, whereas since 1870, when the isolation hospitals were first opened, this rate has only been exceeded once, namely, in 1875, and since 1880 the highest rate in any year has been 553, in 1881. There can be no possible question as to the marked decline of scarlet fever mortality coincidently with the increase of isolation, but this very increase of admissions to the isolation hospitals has given rise to the assertion that it indicates an increased prevalence of the disease in spite of the reduced rate of mortality, which is attributed to the disease having assumed a milder type. The true import of the hospital statistics from this point of view is far more difficult to determine. Up to 1891 the highest number of cases of scarlet fever admitted to the Metropolitan Asylum Hospitals in any year was 6537 in 1890, whereas in 1892 the number rose to 13,093, and in 1893 and 1894 it was 14,548 and 11,598 respectively. This sudden and marked increase was probably due far more to increased accommodation, more complete notification, and a greater readiness on the part of the public to use the hospitals, than to real increase in the prevalence of the disease. In 1878 only 7 per cent. of the fatal cases of scarlet fever in London occurred in these isolation hospitals, whereas in 1894 the proportion exceeded 75 per cent. It is obvious that under these circumstances the admissions to these hospitals can afford no trustworthy measure of the prevalence of the disease in London. Again, if, as is very probably the case, there was a tendency in the earlier days of these hospitals to admit the worst cases, and if in those days the cases were admitted in undue proportions from those classes living under the lowest sanitary conditions, it must lead to untrustworthy conclusions either to assume that the decline in the proportional mortality of the disease in those hospitals indicates a corresponding decline in the general mortality of the disease, or that the hospital returns afford any trustworthy method for ascertaining the number of cases of the disease occurring in London in a series of years. We know that scarlet fever mortality in London has declined in a most remarkable manner since isolation has been more generally adopted, and we see no convincing evidence of any increase in the prevalence of the disease in the undoubted fact that a constantly increasing proportion of comparatively mild cases are now isolated and treated in the Metropolitan Asylum Hospitals.

VITAL STATISTICS.

HEALTH OF ENGLISH TOWNS.

IN thirty-three of the largest English towns 6029 births and 4098 deaths were registered during the week ending Jan. 18th. The annual rate of mortality in these towns, which had been 20·7 and 18·5 per 1000 in the two preceding weeks, rose again last week to 19·7. In London the rate was 19·1 per 1000, while it averaged 20·1 in the thirty-two provincial towns. The lowest rates in these towns were 11·0 in Croydon, 14·0 in Huddersfield, 14·1 in Blackburn, 14·4 in Plymouth, and 14·5 in Sunderland; the highest rates were 23·8 in Burnley, 25·6 in Liverpool, 26·9 in Bolton, 20·7 in Halifax, and 30·1 in Wolverhampton. The 4098 deaths included 564 which were referred to the principal zymotic diseases, against 563 and 508 in the two preceding weeks; of these, 208 resulted from measles, 135 from whooping-cough, 100 from diphtheria, 42 from scarlet fever, 41 from diarrhœa, 38 from "fever" (principally enteric), and not one from small-pox. No death from any of these diseases was registered last week in Croydon; in the other towns the lowest zymotic death-rates were recorded in Huddersfield, Hull, and Cardiff, and the highest rates in Birmingham, Oldham, Norwich, Salford, and Bolton. The greatest mortality from measles occurred in Wolverhampton, Oldham, Birmingham, Burnley, Norwich, and Salford; and from whooping-cough in Oldham, Sheffield, Leicester, Derby, and Bolton. The mortality from scarlet fever and from "fever" showed no marked excess in any of the thirty-three towns. The 100 deaths from diphtheria included 59 in London, 9 in West Ham, 6 in Birmingham, 4 in Liverpool, and 3 in Halifax. No fatal case of small-pox was registered during the week under notice either in London or in any of the thirty-two large provincial towns. There were 73 cases of small-pox under treatment in the Metropolitan Asylum Hospitals and in the Highgate Small-pox Hospital on Saturday last, the 18th inst., against 77, 68, and 66 at the end of the three preceding weeks; 17 new cases were admitted during the week, against 12, 9, and 20 in the three preceding weeks. The number of scarlet fever patients in the Metropolitan Asylum Hospitals and in the London Fever Hospital at the end of the week was 2883, against 2798, 2830, and 2839, on the three preceding Saturdays; 280 new cases were admitted during the week, against 184, 320, and 290 in the three preceding weeks. The deaths referred to diseases of the respiratory organs in London, which had been 314 and 320 in the two preceding weeks, further rose to 336 last week, but were 413 below the corrected average. The causes of 70, or 1·7 per cent., of the deaths in the thirty-three towns were not certified either by a registered medical practitioner or by a coroner. All the causes of death were duly certified in Bolton, Oldham, Sunderland, Newcastle-upon-Tyne, and in six other smaller towns; the largest proportions of uncertified deaths were registered in Leicester, Liverpool, Salford, and Sheffield.

HEALTH OF SCOTCH TOWNS.

The annual rate of mortality in the eight Scotch towns,

which had been 21·0 and 19·6 per 1000 in the two preceding weeks, further declined to 19·5 during the week ending Jan. 18th, and was slightly below the mean rate during the same period in the thirty-three large English towns. The rates in the eight Scotch towns ranged from 10·3 in Perth and 15·2 in Edinburgh to 21·0 in Glasgow and 22·5 in Dundee. The 570 deaths in these towns included 22 which were referred to whooping-cough, 15 to diarrhœa, 6 to measles, 6 to scarlet fever, 5 to "fever," and 3 to diphtheria. In all, 73 deaths resulted from these principal zymotic diseases, against 82 and 63 in the two preceding weeks. The fatal cases of whooping-cough, which had declined from 35 to 23 in the three preceding weeks, rose again to 38 last week, of which 22 occurred in Glasgow, 10 in Dundee, and 5 in Aberdeen. The deaths from scarlet fever, which had been 9, 16, and 2 in the three preceding weeks, rose again to 6 last week, and included 5 in Glasgow. The fatal cases of measles, which had risen from 7 to 14 in the three preceding weeks, declined again to 6 last week, of which 2 occurred in Glasgow, 2 in Dundee, and 2 in Greenock. The deaths referred to different forms of "fever," which had been 7, 4, and 3 in the three preceding weeks, rose again to 5 last week, of which 2 occurred in Glasgow and 2 in Edinburgh. The deaths from diseases of the respiratory organs in these towns, which had been 135 and 131 in the two preceding weeks, were 136 last week, and were 99 below the number in the corresponding week of last year. The causes of 40, or more than 7 per cent., of the deaths in these eight towns last week were not certified.

HEALTH OF DUBLIN.

The death-rate in Dublin, which had been 28·8 and 28·3 per 1000 in the two preceding weeks, further declined to 22·5 during the week ending Jan. 18th. During the past three weeks of the current quarter the death-rate in the city has averaged 26·5 per 1000, the rate during the same period being 19·1 in London and 16·5 in Edinburgh. The 151 deaths registered in Dublin during the week under notice showed a decline of 39 from the number in the preceding week, and included 4 which were referred to the principal zymotic diseases, against 7 in each of the two preceding weeks; of these, 2 resulted from "fever," 1 from small-pox, 1 from scarlet fever, but not one either from measles, diphtheria, whooping-cough, or diarrhœa. These 4 deaths were equal to an annual rate of 0·6 per 1000, the zymotic death-rate during the same period being 3·2 in London and 0·9 in Edinburgh. The deaths referred to different forms of "fever," which had been 3 and 2 in the two preceding weeks, were again 2 last week. The fatal case of small-pox was the first recorded within the city during the present year. The 151 deaths in Dublin last week included 30 of infants under one year of age, and 24 of persons aged upwards of sixty years; the deaths of infants showed an increase, while those of elderly persons were considerably below the number recorded in any recent week. Nine inquest cases and 6 deaths from violence were registered; and 43, or more than a fourth, of the deaths occurred in public institutions. The causes of 12, or nearly 8 per cent., of the deaths in the city last week were not certified.

THE SERVICES.

MOVEMENTS OF THE MEDICAL STAFF.

SURGEON-COLONEL CHURCHILL, lately Principal Medical Officer of the Home District, who has been succeeded by Surgeon-Colonel O'Farrell, has embarked for India to take the place of Surgeon-Major-General T. Maunsell, C.B., transferred on promotion to Malta. Brigade-Surgeon-Lieutenant-Colonel Macrobin has been appointed to the medical charge of the 3rd Station Hospital at Aldershot on return from foreign service. Surgeon-Major Johnstone has been posted to Devonport, Surgeon-Major Emerson to Colchester, and Surgeon-Major Sharpe to Dublin. Surgeon-Captain Perry has been posted to Chatham, and Surgeon-Captain Daly, from half pay, to Dublin. Surgeon-Major Corker has embarked for India.

ARMY MEDICAL STAFF.

Brigade-Surgeon-Lieutenant-Colonel Richard H. Carew, D.S.O., to be Surgeon-Colonel, vice D. C. Grose, deceased. Surgeon-Lieutenant-Colonel Edward H. Joynt, M.D., to be Brigade-Surgeon-Lieutenant-Colonel, vice R. H. Carew, D.S.O. Surgeon-Lieutenant-Colonel Harvie Scott, M.B., retires on retired pay.

INDIA AND THE INDIAN MEDICAL SERVICES.

Surgeon-Captain J. R. Roberts (Bengal), Agency Surgeon, Gilgit, is, on return from leave, appointed to officiate temporarily as Medical Officer, 2nd Regiment, Central India Horse, from date of assuming charge, vice Surgeon-Captain J. B. Jameson, M.B., who has leave for one year and during the absence on leave of Surgeon-Captain C. M. Moore, M.D., or until further orders. Surgeon-Captain R. H. Maddox (Bengal), is appointed to the medical charge of the Bundelkhand Political Agency, in addition to his military duties. Surgeon-Major Alexander Samuel Faulkner, Bombay, Agency Surgeon, Ulwar, retires from the Service.

NAVAL MEDICAL SERVICE.

The following appointments are announced: — Staff-Surgeon Ernest E. Bray to the *Boscawen*, additional, for Portland Sick Quarters. Surgeon F. A. Brice to the *Thunderer*.

VOLUNTEER CORPS.

Artillery: 1st Forfarshire: Surgeon-Lieutenant D. A. Caruthers is appointed Lieutenant. The Highland: Surgeon-Lieutenant H. W. Mann, M.B., resigns his commission. *Rifle:* 1st Volunteer Battalion the Prince of Wales's Own (West Yorkshire Regiment): Alexander Reid Stoddart, M.B., to be Surgeon-Lieutenant. 16th Middlesex (London Irish): Surgeon-Lieutenant J. E. C. Bradley, M.B., resigns his commission.

VOLUNTEER MEDICAL ORGANISATION.

The report of the sub-committee appointed by the Council of the Volunteer Medical Association, and consisting of Surgeon-Lieutenant-Colonel Baines, V.D., Surgeon-Captain Squire, Surgeon-Lieutenant Fletcher, and Surgeon-Major Watson, V.D., secretary, has unanimously expressed the opinion that the departmental, as distinguished from the regimental, aid should be delegated to a departmental corps, and that all bearer companies should be specially recruited, uniformed, and administered as laid down in the Regulations for Volunteer Medical Staff Corps, and that they should be styled bearer companies, V.M.S.C., but that the existing regulations for regimental aid are sufficient and should not be interfered with, all that is required being to bring it into touch with headquarters and to provide for its efficient inspection. The Volunteer Medical Service, being the junior branch of the Medical Department of Her Majesty's army, is under the Director-General as the responsible head of the Department. The committee considers that the gap between the Army Medical Department and the Volunteer Medical Service is too wide, and suggests (1) that a medical officer with administrative rank should be attached to the headquarters of the Army Medical Department as responsible head of the Volunteer Medical Service, and (2) that in each district command a Volunteer medical officer should be appointed by selection from the senior medical officers of the district, and preferably for a limited period, by the Director-General as Volunteer principal medical officer of the district, with administrative rank.

With regard to executive officers the committee express the following opinion:—

Brigade-Surgeons-Lieutenant-Colonel: While this rank should be open to all medical officers of the Volunteer force who by length of service or other merit should have deserved it, it should not necessarily attach to the senior medical officer of an infantry brigade, as it does at present. Surgeon-Lieutenant-Colonel: In the regulations for promotion to this rank no changes are suggested. Surgeon-Major: The length of service required for promotion to this rank should, with certain conditions, be somewhat reduced in the case of an officer commanding a bearer company. Surgeon-Captain and Surgeon-Lieutenant: No suggestions are offered with regard to the present regulations as to these appointments. Regimental Medical Officers generally: Regimental medical officers should never be detached from their corps for other duty except under the circumstances when more medical officers than are necessary for the work of that unit are present, in which case the senior medical officer of the brigade, with the approval of the commanding officer, may utilise the services of such additional officers as he may require. The committee are

unanimously of opinion that, under no circumstances whatever, should regimental bearers ever be detached from their regiments.

Regimental Stretcher-bearers: There is a tendency to forget that the duties of a Volunteer regimental bearer are entirely secondary to his duties in his company ranks. They should never be withdrawn from the ranks unnecessarily. Stretcher drill should never take place during a battalion drill, and the inspection of the stretcher detachment should never take place during the annual inspection of the regiment. Volunteers should not be allowed to wear the "S.B." badge unless they have reported themselves to, and been accepted by, the regimental medical officer.

THE CHITRAL HONOURS.

The following honours to medical officers are announced in the *London Gazette* of Jan. 24th: "The Queen has been graciously pleased to give orders for the following appointments to the Most Honourable Order of the Bath, in recognition of the services of the under-mentioned officers during the operations of the Chitral Relief Force. To be Ordinary Members of the Military Division of the Third Class, or Companions of the said Most Honourable Order—viz., Surgeon-Major-General Thomas Maunsell, Army Medical Staff, and Surgeon-Colonel George Thomson, Indian Medical Service."

Surgeon-Major-General Thomas Maunsell, A.M.S., L.R.C.P.I., L.R.C.S.I., entered the Army as Assistant Surgeon on Oct. 1st, 1860, and was made Surgeon on March 1st, 1873. He was promoted to Surgeon-Major on June 17th, 1875, to Brigade-Surgeon on Oct. 16th, 1886, to Surgeon-Colonel on March 10th, 1892, and to Surgeon-Major-General on Nov. 24th, 1895. He served with the Burmese expedition in 1886–87 (mentioned in the despatches, medal with clasp), and also with Chitral relief force under Sir Robert Low in 1895 as Principal Medical Officer to the force, for which service he has received the well-merited honour gazetted above.—Surgeon-Colonel George Thomson, M.B., M.Ch., also received a similar honour for his distinguished services in the same expedition, of which he was Principal Medical Officer to the lines of communication. He became Assistant-Surgeon on Oct. 2nd, 1865, and was promoted to Surgeon-Colonel on April 1st, 1893. Surgeon-Colonel Thomson, who is Principal Medical Officer of the Lahore district in India, served in the Afghan War of 1878–79, for which he received a medal and was mentioned in despatches.

THE ROYAL MILITARY ACADEMY.

From the report of the Board of Visitors to this institution for 1895 we gather that the Academy was inspected on June 24th last, and that the health of the cadets had been very good during the past year, with the exception of January and February, when much sickness prevailed, mainly attributable to pulmonary diseases and influenza. The average height of the cadets was 5 ft. 9½ in., and their average age 19·8 years. The board were informed that the hospital had been altered and is now in a good condition, and is capable of holding ten patients comfortably. They are of opinion that the building is now sufficient for ordinary cases. They, however, still consider that arrangements should be made at the Herbert Hospital for the reception of cadets in cases of infectious disease of a serious type. They were informed that the construction of an infectious hospital (which they were given to understand last year had been proposed and recommended by the Director-General of the Army Medical Department) had not been provided for in the Estimates of the current year. The Board of Visitors animadvert upon the system that had arisen of allowing so long an interval to elapse between the time of the cadets passing out of the Academy and their being commissioned as unfair to the cadets and their parents, and in contravention of the Standing Orders of the Royal Military Academy.

NAVAL MEDICAL EXAMINATION.

An examination of candidates for fifteen commissions in the Medical Department of the Royal Navy will be held in the Examination Hall, Thames-embankment, on Monday, May 4th, 1896, and following days. The forms to be filled up by candidates will be supplied on application to the department.

ARMY MEDICAL SCHOOL, NETLEY.

The seventy-first session of the Army Medical School, Netley, will be brought to a close on Friday, Jan. 31st, when the prizes will be distributed by General the Right Hon. Sir Redvers Buller, V.C., G.C.B., K.C.M.G., Adjutant-General to the forces.

Correspondence.

"Audi alteram partem."

THE REPRESENTATION OF THE MEMBERS OF THE ROYAL COLLEGE OF SURGEONS OF ENGLAND ON THE COUNCIL.

To the Editors of THE LANCET.

SIRS,—In the leading article on Direct Representation which appears in THE LANCET of Jan. 18th it is written: "To do Mr. Page justice, he yielded quickly to the suggestion of Mr. Tweedy to omit the less generous parts of his amendment, and to be content with the simple, and what will be the historical, averment, that it is desirable to give the Members of the College direct representation upon the Council." With every wish to accord the full share of credit due to Mr. Tweedy for the part he has played, accuracy and justice to others demand some modification of the sentence. The first speaker at the meeting to suggest to Mr. Page that he should omit all but the first clause of his amendment was Mr. Norton. He was followed, after Mr. Morris had spoken, by Mr. Willett, Mr. Tweedy, another Fellow whose name I do not know, and then by myself. In THE LANCET report of Jan. 11th no notice whatever is taken of the speeches made by Mr. Norton, the Fellow referred to, and myself. My own remarks are given with substantial accuracy in one of your contemporaries, although accidentally misplaced. It will there be seen that in supporting the recommendation to Mr. Page I went a step further than my predecessors in the discussion, and advised the withdrawal of the original resolution and the adoption of Mr. Page's modified amendment as a substantive motion. This course was followed by Sir Robert Craven and Mr. Holmes, and the more readily, I believe, in consequence of my suggestion and my appeal to the Fellows that there might be no difference of opinion as to details, but as large a vote as possible in favour of the principle of direct representation of the Members of the College on the Council. There is one other correction which ought to be made. In the report of Mr. Tweedy's first speech in THE LANCET of Jan. 18th he is credited with the observation that he had great difficulty in pursuading the Members' deputation to the committee of Council to consent to Fellows as well as Members being eligible as representatives of the Members of the College on the Council. I did not hear Mr. Tweedy at the meeting put forward this exclusive claim, and feel sure that he would not do so of his own accord, as other members of the Council on the Deputation Committee, including at least the President and myself, also urged the deputation to yield the point.

In justice to all concerned, I feel that these corrections ought to be made. For my own part, I have upheld from the first the claims of the Members of the College to representation on the Council. In my Carmichael Essay of 1879 I advocated the measure, and in my second essay in 1887 I answered all Mr. Erichsen's objections besides giving at length the arguments in its favour. In the pages of the medical press I have done the same, and in 1889 when I came forward with Mr. Tweedy and Mr. Lawson Tait as a candidate for a seat on the Council upon this platform I made it a prominent part of my programme. On every available occasion I have spoken in the Council or on committees in favour of it. I supported it about ten years ago, and, contrary to my own interest, spoke at length in favour of it at two annual general meetings of Fellows and Members; and on one occasion since my election to the Council I avowed my continued adhesion to this just and necessary measure. I have been, therefore, and still am, deeply interested in securing its success, and I regretted the omission of my speech in THE LANCET as I was naturally anxious to show that I had not deserted my colours on a "historical occasion," as well as to indicate that I did not concur with the opinion expressed by Mr. Tweedy at the meeting that members of the Council should abstain from trying to influence votes. It has been decided in the Council that at the meeting of the Fellows members of the Council, with the exception of the President and Vice-Presidents, should sit with the Fellows and join in the debates if they wish to do so. Mr. Morris was quite within his right in speaking at

length against the Members' claims, and so were Dr. Ward Cousins, Mr. Willett, and myself in expressing our opinions in favour of this great and far-reaching reform.

I am, Sirs, yours truly,

Jan. 20th, 1896. WALTER RIVINGTON.

*** We are sorry that Mr. Rivington's speech was inadvertently omitted. Seeing that professional reporters are excluded from these meetings it is not possible to publish anything like a verbatim report.—ED. L.

"A PLEA FOR THE PASTEUR TREATMENT OF HYDROPHOBIA."

To the Editors of THE LANCET.

SIRS,—When I started with my wife for Paris in charge of the eleven Sunbury children who were bitten by a dog reported rabid by the district veterinary inspector, it was with an open mind as to the Pasteur treatment. Taking into consideration the prevalence of rabies, and in face of the mis-statements which are being published in some papers which are likely to influence people in their decision whether to undergo treatment or not, I made it my business, as far as in me lay, to obtain exact statistics. As this is a question of life or death, and as I cannot but consider that the efficacy of the treatment is established, I trust you will give me space to make public the result of my inquiries, and to answer the *Star*, Captain Parkis, and Mr. Collinson.

Professor Roux, the discoverer of antitoxin, informs me that the mortality among persons bitten by rabid dogs prior to the introduction of the Pasteur treatment was, on the best authorities on the subject—such as Dr. Leblanc and the Comité d'Hygiène de la France—(1) in cases of those bitten in the head, from 80 to 90 per cent.; and (2) in cases of those bitten on the limbs or body, 20 per cent. I am indebted to Professor Roux for the reports of the Pasteur Institute for the years 1891, 1892, 1893, and 1894, from which I have extracted the following:—

Year.	Number of persons healed.	Deaths.	Percentage of deaths.
1886	2,671	25	0·94
1887	1,770	14	0·79
1888	1,623	9	0·55
1889	1,830	7	0 38
1890	1,540	5	0·32
1891	1,559	4	0·25
1892	1,790	4	0·22
1893	1,648	6	0·36
1894	1,387	7	0·50
Total	15,817	81	0·55

As the Pasteur treatment does not profess to arrest the disease after it has reached a certain stage, but is essentially a preventive measure, just as vaccination is, speaking generally, a preventive against small-pox, and as by experiments on dumb animals it has been proved that should a person die from hydrophobia within fifteen days of the termination of the course of treatment that the disease had advanced too far before its commencement for it to be of any avail, and as such cases cannot, therefore, be counted as failures, such deaths have been eliminated from the above totals. There were in 1891, 1892, 1893, and 1894 respectively, four, three, two, and five cases. I am not in possession of the figures for the previous years, but as the Institute library is open for public inspection, and a record of every case can be seen, doubtless they can easily be obtained. From this it is self-evident that the statement that Ethel Wilkins was discharged cured is absolutely false. I took especial pains to find out if I might consider my charges safe at the end of the treatment. I was told that it was impossible to say, but that experience showed that after sixty days from the original bite persons who had undergone treatment might be reasonably considered so. It is stated that this poor child was killed by the treatment, and Dr. Murphy is publicly accused of having caused her death because he advised that she should be sent. She was bitten on the left eyelid, the most dangerous of all places, and there should be no doubt in any reasonable person's mind that the virus had taken such hold of her before the treatment began, and that the disease had made too great progress, for it to arrest its course. I had my charges under my eye daily, almost hourly, and I can say most positively that not for one minute did any feverish or uncomfortable symptoms show themselves during treatment, and I have heard of none since the children have been at home. The value of preliminary veterinary examinations are being discounted and spoken of as worthless.

Sir R. Nicholson has informed me that ever since the Brown Institute has been established, and the inoculation tests have been carried on there, this test has in every case confirmed the reports of veterinary surgeons, based upon post-mortem examination. Again, it is affirmed that the Pasteur treatment is practised without any method. This is not true. I was present when the children made their first visit to the Institute. A most minute examination was made of their wounds, every inquiry was made of the circumstances of each case by the medical officer, who then ordered seven of the children to attend once a day for fifteen days for inoculation, two for eighteen days, one for twenty days, and one for twenty-one days; the last, a boy, had been bitten in the face, and he had to attend twice a day for the first three days.

One word more, and I hope, Sirs, you will print the following in large type and so show your sympathy with the righteous indignation which is felt in Sunbury, and which I am sure will be re-echoed by the public at large, for what I am about to relate. Incredible as it may appear, yet it is still a fact, that someone has circulated broadcast in Sunbury (one of the parents had five copies left at his door) a number of the *Star* containing the harrowing details of Ethel Wilkins' death, &c. *This* when the sorrowing parents were separated from their young ones, before the time for anxiety had passed. What good could this do? Rightly or wrongly, the children were undergoing the treatment; what could be gained by trying to frighten the parents out of their senses? One poor woman (her husband was at night work) I am told paced the road near her house for hours in unutterable anguish. What is this but refined cruelty? If the anti-Pasteurians wish for a hearing, such methods as this is the wrong way to get it; it must, indeed, be a weak case which needs to be urged in this way. No; these poor people are blinded by prejudice and misplaced fanaticism. If they have any reliable evidence let them put it forward; if they can prove that the Buisson treatment is more efficacious than the Pasteur treatment everyone will welcome the news; but in a case of life and death let them stick to facts, and, above all, let them refrain from inflicting unnecessary pain, posing the while, I suppose, as humanitarians.

I am, Sirs, yours faithfully,

The Vicarage, Sunbury, Jan. 7th, 1896. F. H. VIGNE.

"THE LANCET" SANITARY COMMISSION ON DISINFECTION.

To the Editors of THE LANCET.

SIRS,—I see by your issue of Jan. 11th that you are publishing articles upon the disinfection of clothing &c. I should be happy to receive anyone commissioned by you and show him the working of my invention in a machine that has been in constant use since 1884. I would also ask your attention to the part of your article from which it might be inferred that the use of steam under substantial pressure entails the employment of specially skilled workmen. This is not accurate, for my patent steam disinfectors have been used for fifteen years by unskilled labourers with the most satisfactory results. Your journal is so widely read that any expression of opinion by you therein such as would lead your readers to believe that the employment of steam under pressure necessitates the services of skilled engineers is likely to do considerable injury to the reputation of my apparatus, and I trust that you will kindly correct this false impression which might certainly be gathered from your article.

I am, Sirs, yours faithfully,

WASHINGTON LYON.

Asylum-road, Peckham, S.E., Jan. 18th, 1896.

*** The efficiency of the Washington Lyon apparatus for disinfection by steam under pressure was established by the careful investigation of Dr. Klein and Dr. Parsons, whose report appeared in the Supplement of the Fourteenth Annual Report of the Local Govt. Board. There is, therefore, no necessity to repeat the experiments. We did not state that the

employment of steam under pressure "necessitates the services of skilled engineers," but "that the use of high pressure steam involved a *certain* amount of engineering knowledge and skill." Surely this is not overstating the case where the use of a safety valve and the control of a pressure gauge are involved.—ED. L.

A HEAVY FŒTUS.

To the Editors of THE LANCET.

SIRS,—A fœtus exceeding in weight even that recorded by Dr. Bennett in THE LANCET of Jan. 11th was observed by me while I attended in the maternity department of the Berlin Charité in 1891. It measured 55 centimetres (nearly 21½ in.) in length and weighed about 7 kilogrammes (15½ lb.). The mother was considered to be at the full term of pregnancy about six weeks before her actual delivery, and the diagnosis of twins had been made by all the physicians who had seen the case. It was the fifteenth child of a strongly-built woman a little over the average height. The labour proceeded rapidly and without any complication, and within three hours from the first appearance of the pains the child was born without instrumental help and the placenta expelled. I am, Sirs, yours truly,

HEINRICH OPPENHEIMER.

Crossfield-road, Belsize-park, N.W.

"THE CHURCH OF TO-DAY."

To the Editors of THE LANCET.

SIRS,—Our attention having been called to the article in your issue of the 18th inst. associating *The Church of To-day* with the publication of improper advertisements, we must ask you to give equal publicity to the fact that the paper on which your remarks were founded was issued without our authority and without our knowledge, and that we decline to be held responsible for its contents.

Faithfully yours,

THE EDITORS OF "THE CHURCH OF TO-DAY."

The Church of To-day. Offices: 144, Fleet-street, London, E.C., Jan. 22nd, 1896.

*** We have received the above letter from the editors of *The Church of To-day* in reference to an annotation that appeared in our last issue, entitled "The Religious Newspapers and Immoral Advertisements." Our comments were founded upon a copy of a newspaper bearing the title *The Church of To-day;* the date was Jan. 3rd, 1896, and the imprint of the publisher was as follows: "Printed and Published for the Proprietors at the offices, 144, Fleet-street, London, E.C." As the offensive paper emanated, or purported to emanate, from the same address as that from which the editors of *The Church of To-day* now address us we may be allowed to express mild wonder at their ignorance of the circumstances under which it was issued.—ED. L.

THE BATTLE OF THE CLUBS.—XVIII.[1]

(FROM OUR SPECIAL COMMISSIONER.)

(*Continued from p. 200.*)

CLUB PRACTICES IN RURAL AND MINING DISTRICTS.

IN the course of this investigation it has been necessary to exercise considerable discretion so as to avoid compromising the medical officers of clubs, &c., who very courteously gave me the information required. The dependent position of some of these medical officers made it impossible for them to face the risks of publicity. They would have been dismissed from their employment had it been known that they had complained. Though under-paid and often rudely treated, yet they were not in a position to sacrifice their club practice. Nor was there any reason to incur such a risk. No good purpose would have been served. Other medical men, unfortunately, could readily be found to take their places. Thus, when describing the state of affairs in various towns I have mentioned but few names, and as these towns were large and the clubs and medical aid societies numerous, it has not, I trust, been easy to trace the precise sources whence I derived my information. But in the present instance such concealment would be absolutely impossible; as this time I have to deal, not with a town, but with a village of from 4000 to 5000 inhabitants. In this village there is but one single practitioner, and therefore but one medical man from whom I could have obtained the greater part of my information. Under these circumstances I am obliged to refrain from mentioning the name of the village in question; and when I have fully explained the position of its medical practitioner the need of such reserve will be still more apparent. Therefore, I will speak of, let us say, Dr. Dash, the sole medical practitioner in the village or little town of—we will call it—Woolwick. Dr. Dash has to attend, not only the inhabitants of the village where he dwells, but those of the outlying districts, making in all a population of about 6000 persons situated within a radius of three miles. This necessitates a drive of six miles to cross from one end to the other of the locality. In this rural district there are lodges of the Oddfellows' and the Foresters' Friendly Societies. There is a local friendly society which admits both men and women members and a family club which is purely a medical aid society, for it gives no financial benefits. The subscription to this family club is 9*d.* per quarter. Out of this sum the medical officer has to pay 5 per cent. to the collector, and the members also pay the collector an additional ½*d.* per quarter. There are in this village no less than eight medical aid clubs or societies, and Dr. Dash insisted that if he did not have all these clubs he could not earn a sufficient livelihood. There is also the Refuge Life Insurance Company, which has organised medical aid for its members, and the National Medical Aid Company, which does not scruple to put sick children on its books for ½*d.* per week. Dr. Dash described to me the case of a child who was put on the books on a Monday and died before the week was out, so that for visiting this child at its own house two or three times, and giving a death certificate, he received the munificent sum of ½*d.*, the amount of the one week's subscription.

The club practice is so extensive that, apart from the numerous patients who came to his surgery, Dr. Dash has frequently to make fifty visits in the course of a single day, and barely a quarter of these are to private patients. To get through the work it is necessary to keep three horses and an assistant. During the influenza epidemic the pressure was so great that he had to see patients when his own temperature was at 102° F., and was only allowed to leave off work when he became delirious. As a result of this epidemic his health was shattered and he found himself out of pocket. For such a practice it was necessary to have the constitution of a horse and a very thick skin so as to support the insults and rude messages constantly received. Yet it would be impossible to refuse to do the club work, for three-quarters of the entire population are members of the clubs, and the remaining quarter would not provide sufficient private practice. Most of the club members pay their medical officer three shillings a year. They are entered as members without any medical examination; the medical officer's advice is never sought. Thus persons suffering from tuberculosis are placed on the books and become patients from the very first week of membership. Nor are any stringent measures taken to see that they pay their subscriptions regularly. If the subscription has lapsed the member simply secures another card, presents himself as a new member, and thus avoids paying anything at all when in good health. Dr. Dash has no control over the lists given to him. Some of the members have paid regularly all the time, and some have only paid for a week or two when they call him in. The addresses of the members entered on the medical officer's list are not given. It is impossible to verify such lists. Dr. Dash must accept everything on trust and is entirely at the mercy of the collectors, for it would be suicidal to complain.

[1] The previous articles on this subject were published in THE LANCET on the following dates: (1) Aug. 24th, 1895, Brussels; (2) Aug. 31st, 1895, Brussels; (3) Sept. 21st, 1895, Portsmouth; (4) Sept. 28th, 1895, Portsmouth; (5) Oct. 5th, 1895, Eastbourne; (6) Oct. 12th, 1895, Lincoln; (7) Oct. 26th, 1895, Lincoln; (8) Nov. 2nd, 1895, Grimsby; (9) Nov. 9th, 1895, Bexhill-on-Sea; (10) Nov. 16th, 1895, Hull; (11) Nov. 23rd, 1895, Hull; (12) Dec. 7th, 1895, York; (13) Dec. 14th, 1895, Northampton; (14) Dec. 21st, 1895, Fermanagh Medico-Ethical Association; (15) Dec. 28th, 1895, Northampton; (16) Jan. 4th, 1896, Birmingham; (17) Jan. 18th, 1896, Birmingham.

Club influence is supreme in the village, for the most notable inhabitants of Woolwick are members of friendly societies or medical aid associations. The tradesmen who are of sufficient importance to have their addresses given in the local directory are nearly all members of medical aid societies. The principal manufacturer of the district, who pays some £600 to £700 a week in wages and about £50 a year in rates and taxes, is a member of the Oddfellows' Friendly Society, and Dr. Dash must attend him for 4*s.* a year. Nor is this a slight matter, for this manufacturer is suffering from hæmoptysis. This patient is rich enough to keep hunters. During the winter he goes for a few months to the seaside, and in passing through London sees a consulting physician to whom he pays a two guinea fee. Yet in his own village he is content to accept medical advice on workmen's terms as a member of the Oddfellows' Friendly Society. His brother, who is not a member of any club, actually called on Dr. Dash some time ago and proposed to contract with him for medicine and advice for a fee of 1*s.* 6*d.* Three other members of the same family who have died from phthisis were all members of clubs, yet this family have been in prosperous circumstances for many years. Another club patient cultivates a farm of some 300 acres and two of his sons have a farm of 200 acres, yet they never pay a medical fee. The local brewer, who is the owner of a public-house and several private houses, together with his wife are members of a medical aid society. Nearly all the publicans belong to medical clubs, as also the local druggists and a large contracting builder who owns several bay-windowed houses. Another manufacturer, a wealthy retired factory owner, a master bricklayer who employs many men, the local printer and photographer, the principal tailor and his two sons, together with the wives of most of these men, are all members of the clubs or medical aid societies, and only pay at most 4*s.*, but more generally only 3*s.*, a year for their medical attendance. Nor is it only the tradesmen and business men who thus avoid paying medical fees; the stewards of both the political clubs, the minister of a chapel, one of the churchwardens, the organist, and the Sunday-school teacher attached to the Church of England are all members of clubs, and in most cases the wives of these persons also subscribe to medical aid organisations. What, then, remains for private practice? In the surrounding and smaller villages the grievance is just as great. It is all club practice, and it all tends to the degradation of the profession.

Out of the twelve notable inhabitants who have been elected to constitute the urban district council five are members of medical clubs. A great portion of the Poor-law guardians are likewise members of the medical clubs and were so thoroughly imbued with the idea that medical service could be obtained for next to nothing that when they came into power they at once proceeded to reduce the salary of the Poor-law medical officer from £70 to £40. Other districts of the same importance would pay about £100 a year for the work that has to be done. The Poor-law district extends to over 13,000 acres and comprises a population of about 6000 people, but the Poor-law guardians estimate the salary of the Poor-law medical man on the club patients' scale, with which, as members of friendly societies, they are best acquainted. The same thing applies to the district board. They have fixed the salary for the medical officer of health at only £25 per annum, yet in this district of shallow wells it is often necessary to analyse water by the albuminoid process. Of course, it was natural to suggest that Dr. Dash should refuse to accept such conditions. In that case, Dr. Dash explained, another medical man would at once be brought into the village, who, as he put it, "would rent a house for 7*s.* 6*d.* a week, live on a red herring, and give his patients brown sugar and water till he had got a good footing." At Woolwick there is just enough to do to tempt some young medical man who has not yet obtained a practice. At the present rate of payment there is not enough for two practitioners to live comfortably. Dr. Dash feels that if any of the clubs were dissatisfied with him they would at once call in a new man. The practice, divided with the newcomer, would then be insufficient for both parties. To prevent this Dr. Dash must submit himself to every possible exigency and never make any protest. He must allow the clubs to be abused by the wealthy. His club patients govern the vote of the Poor-law guardians and of the Urban District Council. If he complained in any way they would at once appoint a stranger as medical officer of health and Poor-law medical officer. Dr. Dash would then not only lose these two appointments, which are barely worth having, for the pay is only about a third of what it should be, but he would have a competing medical man brought into his village. With this dread of competition ever before him Dr. Dash must satisfy every exigency, however unjustifiable, and accept responsible public office at any salary the club men who govern the district may think sufficient. To the poor people who crowd his surgery he must be equally subservient. They must not be allowed to grumble about the club medical man; and to ensure their goodwill it is best to treat them more in accordance with their palates than with their symptoms. To satisfy these patients it is necessary to give them a lot of medicine. It must be a dark medicine with a strong taste, preferably of peppermint. Something warming and comforting is required, so that when any friends call at the patient's house he can offer them a glass of his medicine. When a little hospitality can thus be shown at the medical man's expense it greatly enhances his popularity; besides, the patients will have a high opinion of the treatment if all the neighbours find some pleasure in tasting his medicine and declare that it is "very good stuff." But, as Dr. Dash remarked, "this sort of thing wears my soul out, and I cannot get an assistant to remain with me for long, for they naturally object to such poor and degrading work."

Dr. Dash felt convinced that no local effort of his could mend matters. He described himself as absolutely and helplessly at the mercy of the clubs. They could at any moment call in some other practitioner and so reduce his income as to compel him to leave the place. He felt, however, convinced that those who were actually paying 3*s.* a year for medical aid could well afford to pay 5*s.*, and it should be rendered "infamous" for any medical man to accept less. If at the same time a wage limit was enforced, so that well-to-do people could not join medical aid societies but had to pay the usual private practice fees, a second medical man could come to Woolwick. There would then be work enough for both to earn a sufficient income, particularly if the salaries of the Poor-law medical officer and the medical officer of health were raised to what is generally given in other similar districts. The establishment of such conditions would not only be a great advantage to the medical profession, but would tend to reduce the death-rate and improve the health of all the inhabitants. The club patients would be better and more conscientiously treated. Their fancy for peppermint-water coloured with burnt sugar might not be so extensively indulged, but they would get medicaments better suited to their complaints and ailments.

From Woolwick I went to a village some miles away where nearly all the inhabitants are colliers. Here, also, most of the work is contract work. There are branches of the Foresters, the Oddfellows (Manchester Unity and Nottingham Order), the Hearts of Oak, &c. The subscription used to be 4*s.* a year, but it has been reduced to 3*s.* 6*d.* There is, however, only one female club in the neighbourhood which gives medical aid. It belongs to the Nottingham Order, and the women pay at the same rate as the men—namely, 3*s.* 6*d.* per annum. Most of the men in the neighbourhood, being miners, are engaged in a hazardous work; consequently, 2*d.* per week is deducted from their wages, which provides for medical attendance and sick pay when accidents occur. The largest colliery in the neighbourhood pays the local practitioner £50 a year as a retaining fee in case of accidents. But from the same men the same medical practitioner also very frequently receives 3*s.* 6*d.* a year because they are members of a friendly society. Sometimes they belong to more than one club or friendly society, so that when they are ill they get more money as sick allowance than the amount of wages they are able to earn when well. Altogether, the club practice brings in about £400 a year, out of which drugs, &c., have to be provided. Then there are the midwifery fees, which at 10*s.* 6*d.* represent another £70 per annum. Of course, there are very few private patients; still, for a rural practice a fair livelihood might be made here but for the action of the speculating insurance companies who have appeared on the field. The National Medical Aid, the British Workman, and the Refuge companies had asked the local practitioner on whom I called to work for them. He, however, refused to serve under these lay and commercial companies. Consequently they introduced into the village a new medical man. Thus this district, which for many years had been in the hands of one single practitioner, has now two practitioners. The new

medical man has written letters to the friendly societies asking them to appoint him as their medical officer, though, of course, he knew that the post was already filled. In the face of such competition how is it possible to ask that the 3*s.* 6*d.* now paid should be increased? The pay, whatever it is, must be accepted, otherwise it will go to the newcomer; and in such districts there is very little else to be done but club work. Indeed, it is better that the miners should belong to clubs, otherwise their medical attendant will get no pay at all. A penny, twopence, and even sixpence a week can be obtained without difficulty, but shilling fees or eighteen-penny fees with medicine included are never paid. On these terms my informant had outstanding bills due to him to the amount of about £200, and he looked upon this money as lost. Therefore, it was preferable that this class of patients should belong to a club; but there ought to be better means of controlling the members who are in clubs, so that the medical man might know whether he really obtained all the money that was collected, and there should be a wage limit. With a wage limit there would be some chance of a little private practice in these neighbourhoods. Any attempt, however, to bring about improvements on these lines is foredoomed to failure so long as speculating companies introduce new men ready to accept work on any terms.

(To be continued.)

LIVERPOOL.

(FROM OUR OWN CORRESPONDENT.)

Hospital Sunday.

SUNDAY, the 12th, was the twenty-sixth anniversary of Hospital Sunday in Liverpool, and was duly observed in almost all the churches and chapels in and around Liverpool. The weather was much less inclement than in recent years, people not being prevented by this cause from attending their usual places of worship. The full results are not known yet, but it is hoped that they will not be less than those of last year.

The Liverpool Northern Hospital.

At the annual meeting of the Northern Hospital last week a donation of £5000 towards the erection of the new hospital was announced. The donor was Mr. Henry Tate, whose munificence has shown itself on many previous occasions. The new hospital will occupy its present site with a greatly enlarged area, and every effort will be made to secure a hospital which shall in all respects be fully up to date. Liverpool will then possess four general hospitals with accommodation for 700 in-patients—not too large a number for so vast a city.

The Alleged Murder by a Dentist.

Herbert Westworth, dentist, was yesterday fully committed for trial at the next assizes for the wilful murder of his wife on the night of the 12th ult. Death was shown to have been caused by severe internal injuries.

Jan. 21st.

SCOTLAND.

(FROM OUR OWN CORRESPONDENTS.)

Meeting of Contributors to the Edinburgh Royal Infirmary.

AT an adjourned meeting of contributors to the Edinburgh Royal Infirmary, held on Jan. 20th in the council chambers, the report of the contributors' committee appointed to consider the annual report of the managers was presented by Mr. James Haldane, C.A., convener of the committee. During the year ending Oct. 1st, 1895, the total number of patients treated had been between 35,000 and 36,000. As regards the ordinary receipts, the accounts showed an increase of £1400, the total amounting to £31,086, as against £29,686 in 1894. The larger part of the difference was due to the fact that the miners, having made no contribution during 1894, the year of the coal strike, had in the past year sent two years' contributions. The expenditure for the year, which amounted to £39,395, showed, after making allowance for fewer patients daily in the wards, a reduction of £2135, a reduction which arose to a large extent on medical expenditure, and for which the thanks of the contributors were due to Surgeon-Major-General Lithgow for his careful supervision in that connexion. The extension scheme which had been in abeyance was now to be proceeded with under a modified form. They would receive on May 15th a bequest by the Earl of Moray of £60,000 and one of £25,000 by Mr. Peter Waddell of Leith. Special donations for the extension fund had been received to the amount of about £14,000, and had been applied towards the purchase of property costing £30,350, on which the new buildings were to be erected. The infirmary was in debt altogether about £43,000, which debt they proposed to clear out of the above-mentioned bequests, leaving a surplus of about £32,000. The new buildings were estimated to cost from £50,000 to £60,000. The modified scheme included the erection of a new pavilion containing eighty-four beds, and a new laundry. There was also under consideration special provision for the use of electricity, improvement of the operating theatres, a bathing department, isolation wards, and arrangements for the teaching and use of massage. The committee expressed their satisfaction with the management of the affairs of the infirmary during the past year.

Edinburgh University Lectureship.

At a meeting of the University Court last week approval was expressed of the manner in which Dr. Argyll Robertson had performed the duties of the Lectureship on Ophthalmology during his tenure of office, and Mr. George A. Berry, M.B., F.R.C.S. Edin., senior ordinary ophthalmic surgeon to the Royal Infirmary, was elected to the vacant post.

Disease among Cattle near Edinburgh.

A species of so-called cow itch or scabies has appeared among cattle in the neighbourhood of Edinburgh, and has been communicated in some cases to persons working about the cattle. Orders have been issued under the Edinburgh Municipal and Police (Amendment) Act, 1891, to stop the supply of milk from premises where this disease exists, but whether this is true scabies as it occurs in the human subject is very gravely doubted by competent authorities.

Microscopical Society of Glasgow.

At an exhibition of specimens of interest on the 17th inst. a number of Microphotographs showing the Different Stages of Nuclear Division in Epithelial Cells from the Conjunctiva, and prepared by Dr. Thomas Reid, were exhibited by Dr. Bell Todd.

Legal Action for Medical Fees.

An action recently raised in the Ayr Sheriff Court by Dr. Charles Stewart against the Garnock Shipping Company is of some importance. Dr. Stewart had been called in to attend one of the firemen who had been injured whilst on board a vessel lying at Glasgow, and claimed for this a fee of a guinea. The defenders denied liability on the ground that the ship lying in a home port the master was not liable to pledge the shipowner's credit for such surgical attendance. The sheriff, however, decided that the Merchant Shipping Act, which enacts that "the expense of all medicines and medical and surgical advice and attendance given to any master, seaman, or apprentice whilst on board his ship" applied to the present case, and accordingly he gave decree for the medical man's fee with expenses against the shipping company.

Glasgow Royal Asylum for Lunatics.

The annual meeting of contributors to this institution was held on Jan. 17th. The report stated that at the commencement of the year the asylum contained 495 patients. The directors are continuing their policy of gradually excluding all pauper patients, of whom the asylum now only contains sixty-five. At the same time they have increased the accommodation for private patients who are only able to pay a limited sum for board. In this way the asylum will, it is hoped, be of special value to a class whose position demands consideration.

Aberdeen Water-supply—Purification of the River Dee.

Up to Dec. 31st, 1895, the Aberdeen town council had expended the sum of £4089 8*s.* 2*d.* on wages, materials, &c., in connexion with the sewage irrigation works at Kincardine O'Neil, Aboyne, Ballater, and Braemar, above the intake of Aberdeen waterworks. During last quarter Mr. Thomas Jamieson, F.I.C., city analyst, examined seventeen samples of the water-supply from the Dee. He reports as follows: "All good quality. Free ammonia ·001 to ·021, albuminoid ammonia ·058 to ·088 parts per 100,000."

Public Health Matters in Aberdeen during 1895.

During 1895 the sanitary inspector seized 30,949 lb. beef,

583 lb. mutton, 997 lb. pork, 232 lb. veal, 28 lb. of rabbits, 4617 lb. of "offal," 1242 lb. tinned meat, 146 lb. fruit, and 26,618 lb. of fish, amounting to 29 tons 4 cwt. in all; 5424 nuisances were registered and 4362 abated; 583 patients were removed to hospitals, and 4932 patients were supervised by the sanitary staff at home. There were 2818 deaths from all causes during the year, being a death-rate of 21·07 per 1000 inhabitants.

Jan. 22nd.

IRELAND.

(FROM OUR OWN CORRESPONDENTS.)

The Coming Examination at the Army Medical Board.

THE announcement of seventeen vacancies in the Army Medical Service to be competed for next month has naturally attracted some attention among young and recently qualified medical men. There used to be a regular Army class of men preparing at the Dublin schools for competition at the Army and Naval Medical Boards, but it has ceased to exist within the last few years, and the reason is not far to seek. Irish candidates have, for some reason, begun to suspect (doubtless without sufficient cause) that the phrase "No Irish need apply" holds good in their case. This idea owes its origin, probably, to some remarks which have occasionally appeared in some of the service journals. For example, in the *Broad Arrow*, a leading article appeared some months ago calling attention to the fact that competition for entry into the Naval Medical Service was not as keen as it should be, and that the number of candidates from Ireland had notably fallen off. The writer went on to remark:—"Formerly a considerable portion of candidates were men who qualified at Irish centres, but Hibernian degrees are no longer regarded favourably by the examiners." Imagine the feelings of men holding the qualifications of the University of Dublin or the Royal University of Ireland when they find themselves thus spoken of.

Death of Dr. Clugston of Ballyclare.

I regret to have to announce the death of Dr. Clugston, which took place at his residence, Ballyclare, county Antrim, on January 15th, at the age of sixty-eight years, after a very short illness. Dr. Clugston studied in Edinburgh, where he graduated M.D. in 1853; he was also L.R.C.S. Edin. He was much respected in his district, where he had resided for more than forty years, and enjoyed an extensive practice.

Visit of the Lord-Lieutenant to Queen's College, Belfast.

His Excellency the Lord-Lieutenant (Earl Cadogan), who has been staying in the North of Ireland, paid a state visit to Queen's College, Belfast, on January 18th, and received a most enthusiastic reception. On arriving at the College he was received by the President and professors, who conducted him to the examination hall (which was crowded with students and invited guests). Here he received two addresses, one from the President and council of the College, and the other from the students. In the former the interesting fact was brought out that the College has on its books the names of 5563 students who have received their education within its walls. His Excellency made a most courteous reply to both, and then proceeded to the site of the new Students' Union buildings, where he laid the foundation stone and was presented with a handsome trowel and mallet. This new building will occupy a site in the College grounds at the junction of University-square and Botanic-avenue. In the basement there will be apartments for caretaker, kitchen, offices, and heating chamber. There will be a two-table billiard-room (40 ft. by 30 ft.), and adjoining lavatories, baths, &c. On the principal floor will be the "McMordie" Hall (40 ft. by 30 ft.), with accommodation for 400 persons on floor and gallery. It is to be used as a reading-room and debating hall. There will be a refreshment-room (30 ft. by 24 ft.), and it is served by lifts from the kitchen, over which it is placed. The upper floor will contain a smoking-room and a chess-room, and there is also a committee-room. The building will be of brickwork, and sandstone for groins and window joints, &c. The architectural style chosen is a somewhat free treatment of the Tudor Gothic, in harmony with the existing College building.

Irish University Education.

Renewed interest has been aroused in this question owing to remarks made by his Excellency the Lord-Lieutenant of Ireland during his visit to Belfast last week. At the Lord Mayor's luncheon he said that the question of education is one which the Government were bound to consider, and they would have to deal with it in its various aspects of primary education, university education, and technical education. Again, at his visit to Queen's College, Belfast, in reply to a sentence in the address presented to him hoping that in any arrangements which the Government may find desirable to make in university education in Ireland the interests of the College would be looked after, he said the College merits the highest eulogium which can be pronounced upon it, and he had no doubt that, in the event of any new legislative arrangements being made with regard to university education in Ireland, the interests of this great College would be safeguarded. These utterances of Earl Cadogan may be interpreted variously, but in Belfast a good many think they indicate very probably a Catholic university being founded in Dublin and a northern university in Belfast, with the consequent extinction of the present Royal University of Ireland. This would be, considering everything, the best settlement of the question.

Jan. 21st.

PARIS.

(FROM OUR OWN CORRESPONDENT.)

Protective Measures at the Paris Faculty.

I HAVE already informed your readers of the new regulation Acts excluding foreigners unprovided with the French degree of *Bachelier* from the Paris Faculty of Medicine and of the relegation of these aspirants to provincial Faculties. The motive alleged for this extreme measure is the overcrowding of the dissecting-rooms, laboratories, and wards. The real motive would appear to be jealousy of foreign medical men, who after graduation settle in France and so deprive indigenous practitioners of practice that would, they imagine, otherwise be theirs. That this latter is the real reason is apparent from articles written in this sense by writers in various medical journals. I have before me such an article published in the *Presse Médicale* of the 18th inst. Here the writer advocates in unmistakable terms the absolute exclusion of foreign graduates of a French Faculty unless they have passed subsequently to their graduation an examination equivalent to the German *Staats-examen* and serve three years in the French army. For this writer the choice is plain—naturalisation or exclusion from practice. And this is by no means an isolated view of the case; the same solution of the problem has been proposed by other medical journalists. This is protection with a vengeance. But do these reformers (!) really imagine that the average travelling Briton, for example, not to mention the invalid, would deliberately pay periodical visits to French health resorts were he aware that, in case of necessity, he had to have recourse to the services of a French medical man whose knowledge of British modes of living, nursing, &c., must needs, in such an untravelled community, be quite conjectural? The average French practitioner still regards tea more as a medicine than as an ordinary beverage, and his notions regarding that very British product, whisky, are the most hazy. For instance, in a case of peripheral neuritis of alcoholic origin occurring in an English lady I had occasion to consult a Paris hospital physician who is an acknowledged authority on alcoholism. He immediately suggested to the patient that she had been in the habit of consuming vermout, amer Picon, or absinthe, and when I informed him that the poison was whisky he asked what that beverage was made of. It is useless to expect the Englishman to forego his nationality, and I am confident that were such an illiberal regulation suggested by these writers adopted French health stations would suffer from such a degree of inanition that the law would soon have to be revoked. It is only right to say that the writer of the article alluded to is strongly in favour of opening the doors of the Paris Faculty to all comers on the condition that the degree granted be purely honorary. He also makes some sensible suggestions as to reforms in the teaching, which he would like to see assimilated to that provided at Vienna, where, unlike Paris, the staff earns a large income derived from students' fees. The cumbrous system of *concours*, with its attendant favouritism and loss of valuable years and energy, should be abolished;

the unrivalled material for teaching existing in Paris would then be properly utilised, and this Faculty would once more take its place, as in the time of Velpeau, Trousseau, and Malgaigne, in the front rank of medical schools. Routine is the curse of the Faculty. What can be thought of such an arrangement as the following? The late Professor Ball (Professor of Mental Medicine) had, besides his wards at the Clinique of the Asile Sainte-Anne, others for general cases at Laennec, where once a week he used to examine his female patients with the speculum and apply dressings to the os uteri! A distinguished dermatologist, now at St. Louis, wasted years of his life as a neurologist and general physician simply because he had to await his turn before he could pursue his natural bent.

The Provisioning of the French Army.

The *Médecine Moderne* of the 18th inst. informs us that after Jan. 1st, 1897, the stock of preserved meat for consumption in the French Army can only be replenished with meat preserved in France or the colonies, or in countries under her protection, such meat to be furnished by native cattle, and the preserving to take place under the supervision of the State or in a State establishment.

The Double Uterus in Pregnancy.

Dr. Eustache relates the case in the *Journal des Sciences Médicales de Lille*, No. 40, of a woman pregnant for the second time and affected with leucorrhœa since her first confinement. An examination with the speculum revealed a double os, one closed and the other dilated, a flow of muco-pus escaping from the latter. The abdomen was very prominent on the left side, and double uterus with pregnancy of the left segment was diagnosed. This diagnosis was verified after the labour. Three days after labour pain experienced in the right half of the abdomen resulted in the expulsion of a triangular membrane 4 centimetres in diameter, this being evidently the caduca formed in the right uterine cavity. Three successive pregnancies have since occurred, alternately in the right and left segments. Each accouchement was followed on the third or fourth day by the expulsion of membranes from the non-gestating cavity.

Successful Treatment of Cirsoid Aneurysm by the Sclerogenic Method.

Professor Lannelongue related at the Académie des Sciences on Jan. 6th a striking example of the useful application of his sclerogenic method of treatment. The patient was a woman aged twenty-eight years, who was affected with a congenital tumour which occupied the right submaxillary region, crossed the median line in front, and invaded the left side, involving also the right cheek, following in its development the right jaw, in front of and below which bone it formed a prominence of a horse-shoe shape. The floor of the mouth on the right side and the right half of the tongue were also invaded by the growth, the nature of which corresponded with that peculiar to cirsoid aneurysm. Sclerogenesis was had recourse to, three or four minims of a 10 per cent. solution of chloride of zinc being injected into the immediately adjacent tissues. Four *séances* of such injections in the surrounding parts and in the tumour itself induced no further complication than two sphaceli in the neck. The treatment, begun at the end of May, 1892, lasted until the end of July of the same year, the woman leaving Paris in August with the growth transformed in nearly its entirety into a dense mass, and the general condition being much improved, feeding being easy. Professor Lannelongue has seen the patient twice subsequently to the treatment, and he remarked that nearly the whole of the growth had been undergoing a slow atrophic sclerotic process. He is of opinion that the cure is permanent.

Jan. 22nd.

ROME.

(FROM OUR OWN CORRESPONDENT.)

"*A Homicide every Two Hours.*"

ON Thursday last, in the Aula Magna of the Collegio Romano, before a brilliant audience graced by the presence of Her Majesty Queen Margherite, the distinguished criminologist, Baron Garofalo, delivered a lecture on "Criminalità in Italia in Rapporto all' Educazione del Popolo." His statistics were certainly startling. In Italy the annual loss of life by homicide (usually by lethal weapons) numbers about 4000 souls. Compared with France, for instance, she has 10 homicides a year for France's one; and 35 for Denmark's one. The Latin populations, indeed, in both hemispheres have a bad pre-eminence over the Teutonic in crimes of violence, if not in crime generally, and of these Latin populations the Italian is the worst. "La statistica prova che ogni due ore in Italia si spegne una vita umana per ferro omicida" (statistics prove that every two hours in Italy a human life is extinguished by the assassin's knife), and Baron Garofalo proceeded to give the reasons why. In the first place, vendetta, which in Greece was heroism and in mediæval Europe a laudable custom, has lingered longer in Italy than in any other country; duelling, also, is more frequent in Italy than elsewhere. What do these two facts imply? A profound, apparently ineradicable distrust of the law-courts to vouchsafe redress and the consequent "taking the law into one's own hand." The reform of these in the direction of even-handed justice promptly and summarily carried out, with the minimising of the plea of "attenuating circumstances" and the abolition of "verdicts of the heart," is an obvious innovation, to say nothing of a return to capital punishment. In the next place education has to be thoroughly recast in Italy, if not exclusively on the lines advocated by Lombroso and his school, at least with reference to the physical organisation of the child and the purification of his moral environment. Thirdly, the ennobling of the sentiments as part of the educational programme is certainly a desideratum in Italian schools, and this, in Baron Garofalo's view, is to be compassed not so much by moral as by religious inculcation. To the religious instruction given in Great Britain and the United States of America he attributes the fact that these countries have in forty years diminished by one-half the annual proportion of their delinquents and mendicants, while in Italy the want of similar instruction has resulted in the positive increase of delinquency and mendicancy since 1862. When to these considerations we add the increased hardness of living in the young kingdom, the strain put upon the moral resisting power by a crushing poverty, the squalid dwellings, the defective alimentation, by which the brain is starved, when it is not actually poisoned, by the stimulants in which relief from misery is sought, and the depreciation of life as it exists under such conditions, we arrive at an *ensemble* of causes which quite accounts for Baron Garofalo's sad statistics and strengthens his plea for educational reform in its widest sense, physical, moral, and religious. His lecture, I need scarcely add, was loudly applauded and earned him the cordial congratulations of Queen Margherite.

Infected Passenger Ships: a Warning.

The haste with which the War Office had to send troops to the front after the reverse at Amba Alagi found the transport service quite unprepared, and so passenger steamers had to be utilised for the purpose. One of these, which usually plies between Naples and Palermo, the fine commodious steamer *Marco Minghetti*, after disembarking its contingent of troops at Massowah, returned with patients on board suffering from typhoid fever. *En route* a quantity of bedding had to be thrown into the sea under medical orders, and the vessel is now resuming its old line between the Neapolitan and Palermitan ports. Italian steamboat service has not the highest reputation for tidiness or even common cleanliness, and the companies whose vessels have been engaged for transport duty between Italy and Abyssinia would do well to relieve the travelling public of a not unreasonable misgiving by issuing medically signed certificates of the seaworthiness of their floating stock. Unless this is done they must not be surprised if they number fewer passengers of the English-speaking world, till such time, at least, as sanitation has set its seal on their vessels as free from infective maladies.

Jan. 18th.

VIENNA.

(FROM OUR OWN CORRESPONDENT.)

Photography by the Light of Vacuum Tubes.

THE discovery of Professor Roentgen of Würzburg has not failed to cause a great sensation among the medical profession of Vienna, and at the meeting of the Medical Society on Jan. 17th Professor Exner gave an account of it. On passing an electric current through Crookes' vacuum tube beams of light issuing from the cathode cause a fluorescence on the sides of the tube, and are accompanied by rays which,

though invisible to our eyes, are able to penetrate wood, paper, and metals. He exhibited the photograph of Siemens' unit enclosed in a wooden case, and one of a hand in which the outline of the bones was distinctly seen. On the photograph of a living hand with an old and already healed gunshot wound it was obvious that the deformity was caused by the oblique union of the fractured parts of a phalanx. Professor Exner supposes these rays to be longitudinal vibrations. Further experiments performed by Professor Puluj of Prague show that they penetrate the plumage of birds, but not their skeleton. On the other hand, Professor Zenger stated that in 1883 he succeeded in producing a photograph of the summit of Mont Blanc from Geneva at night, which, as he believed, was due to the cathode light emanating from the summit. These rays are invisible to our eyes and can only be recognised by their acting on surfaces sensitised for photographic purposes.

The Reform of Medical Study.

The Committee on Medical Study met at the end of 1895, Baron Gautsch, the Minister of Public Instruction, being in the chair. There were present Professor Exner, the reporter on medical affairs in the Ministry for the Home Department; Dr. Kusy, the President of the Sanitary Council; Professor Hofmann, the President of the Lower Austrian Sanitary Commission; Dr. Karajan, Professor Albert (Vienna), Professor Chiari (Prague), Professor Rydigier (Cracow), Professor Rollet (Gratz), Professor Puschmann (Vienna), Professor Poniklo (Lemberg), Dr. Heine, Dr. Brenner, Dr. Ostrcil, Dr. Waldner, Dr. Lazarsky, and Dr. Smoly, the representatives of the Medical Chambers. The committee proposed that the examination in zoology, mineralogy, and botany should be abolished, and that these subjects should be replaced by obligatory lectures on biology. This new departure, which has been unavailingly recommended for many years, will inaugurate an entire change in medical study, for hitherto the student was admitted to the so-called "First Rigorosum" only after having completed a two-years' course and passed the examinations in the above branches. Obviously he could not direct his attention to either anatomy or physiology, and consequently entered the clinics without the necessary preparation. According to a further proposition of the committee, the student should devote a minimum of twenty hours a week to class attendance, the present number amounting to ten hours. As regards the other examinations, only those in forensic medicine, pathological anatomy, and public health should be oral. The most important innovation is the obligatory practical year which follows the obtaining of a diploma. Though it may be true that Austrian students do not receive a sufficient amount of practical training in surgery and medicine, this new scheme does not meet with the approval of the whole profession. As I have already stated in an article in THE LANCET of Sept. 28th, 1895, this deficiency is due to the system of centralisation which prevails in this country. It appears unnecessary to prolong the time of medical study, seeing that the same object may be obtained by other measures. Vienna has no lack of hospitals, but only a few are used for teaching purposes, and the students are obliged to attend exclusively the clinics of the general hospitals. An effective practical training would be easily obtained if the extraordinary professors and the chief physicians were empowered to deliver lectures forming part of the statutory curriculum. It is by no means certain that the proposals above mentioned will be adopted in the new regulations.

Subphrenic Abscess.

At a recent meeting of the Medical Club Dr. Schlesinger read a paper on Subphrenic Abscess, a condition which was first recognised by Barlow in 1845, and was eventually described by Leyden as pyopneumothorax. Dr. Schlesinger distinguishes between abscesses which are due to the thoracic organs (the lungs, pleuræ, heart, and pericardium) and those which have their starting-point in the abdominal organs (the liver, stomach, pancreas, kidneys, and retro-peritoneal lymphatic glands). The abscess may also arise from remote organs, such as the vermiform process or the female genitals, and may also be caused by perforating and subcutaneous tumours. According to the position there are different symptoms. Extra-peritoneal abscesses of the vermiform process or of the female genitals perforate the urinary bladder and extend to the crura of the diaphragm, whereas intra-peritoneal abscesses originating below the diaphragm pass through the lymph passage to the pleura. The liver and spleen are then displaced downwards and the heart upwards. The formation of gas is an important symptom in connexion with these abscesses. In order to localise the abscess a puncture has to be made in two intercostal spaces; if the pus is above the diaphragm the rapidity of the outflow is diminished during inspiration, but if it is below the rapidity is increased.

Suicide in Vienna.

During 1894 there were 389 suicides and in 1895 there were 404, including those of 314 males and 90 females at ages varying from twelve to eighty-seven years. Their prevalence according to the season of the year was as follows: in January 24, in February 24, in March 33, in April 30, in May 35, in June 40, in July 46, in August 28, in September 28, in October 30, in November 42, and in December 44. Of the various modes of accomplishing their purpose 149 persons resorted to hanging, 92 to pistol shots, 58 to drowning, 45 to poison, 55 to cutting instruments, and 5 to burns. From 1889 to 1893 the number of suicides amounted to 1254, equivalent to a rate of 3·2 per 10,000 of the population, the corresponding figures in some other Continental towns being—in Brussels 3·29, in Munich 1·98, in Paris 3·6, in Berlin 2·96, and in Breslau 3·91 per 10,000 of the population.

Cholera in Galicia.

During last week four cases with one death have been reported from the districts of Husiatyn and Trembowla, making a total of 438 cases with 286 deaths since the commencement of the outbreak.

Jan. 19th.

AUSTRALIA.

(FROM OUR OWN CORRESPONDENT.)

Proposed Electoral Reform at the Melbourne Hospital.

LAST month the three medical societies in Melbourne appointed delegates to a conference to consider the present method of electing medical officers at the Melbourne Hospital and to suggest reforms. The following resolutions were passed by the conference and submitted to the societies for criticism. "1. That the present system of election of honorary medical officers of the Melbourne Hospital is unsatisfactory. 2. Suggested reforms: (*a*) That an age-tenure is desirable, and that the retiring age be sixty years. It is submitted for the consideration of the societies whether it is, or is not, desirable to fix a time tenure of twenty-five years for members of the in-patient staff. (*b*) That the candidates for vacancies on the senior staff be selected from the junior staff. 3. That all vacancies in the honorary medical offices be filled by election at the hands of life governors and subscribers who have subscribed a total sum of £3 at any time or times during the four years preceding an election." At the Medical Society of Victoria the proposals of the conference were carried by a narrow majority and after some discussion, several members objecting to a scheme which did not practically alter the present mode of election, but still left it in the hands of the subscribers. The Victorian Branch of the British Medical Association passed the first and second resolutions, but rejected the third. The proposals have not yet been considered by the Melbourne Medical Association. Even supposing that they should be unanimously adopted by the societies it is extremely doubtful whether the powers that be would carry them into effect or if they would really mitigate the evils complained of—evils inherent in the system of election which is untouched by these quasi-reforms.

The Meat and Milk supplies of Melbourne.

Attention has long been drawn to the imperfect supervision exercised by the health authorities in Victoria over the meat and milk supplies. In 1885 a board was appointed to inquire into the prevalence of tuberculosis in cattle, and it found that probably 7 per cent. of all cattle slaughtered for the meat supply of Melbourne were tuberculous to some degree. The board recommended that all the slaughtering should be concentrated in one central abattoir and a full and competent staff of inspectors appointed. Again, in 1889 a Royal Commission was appointed to inquire into the sanitary condition of Melbourne, and especially into the condition of the abattoirs. Its report showed that these were in a very unsatisfactory state, and it recommended the abolition of all but the Melbourne abattoir, which was also to be abolished unless reconstructed in accordance with the requirements laid down by the commission. Nothing, however, has been done, and this year agitation on the

matter has again been active in the press, and the metropolitan municipalities appointed a committee to report on the state of the metropolitan meat and milk supplies. This committee has recently presented its report, It will be satisfactory for British readers of THE LANCET to learn that the committee found that the arrangements for the export trade in meat are highly satisfactory; only prime animals are selected, and when slaughtered they are carefully inspected and any unsound or bruised meat is rejected. With regard to stock slaughtered for home consumption, the committee found there was practically no supervision except at the city of Melbourne abattoir, and at most of its inspections its experts found cases of disease in both live and dead stock, and it had no doubt that a considerable quantity of diseased meat is passed into human consumption. Many of the slaughtering premises were found to be totally unfit for the business and in a disgraceful condition—to be, in fact, in a worse condition than when the sanitary commission reported in 1889. With regard to the milk-supply, both cattle and premises were unfit for dairy purposes in many instances, and the same want of effective supervision obtains as in the case of the meat-supply. Several of the dairy cattle were found to be badly affected with tuberculosis.

Proposed Registration of Midwives in New South Wales.

A Bill was lately introduced in the Legislative Assembly of New South Wales to "promote the better training of women as midwifery nurses and for their registration as such." Any woman who at the passing of the Act has been in actual practice in New South Wales as a midwife for not less than one year may be registered if she obtains a certificate of midwifery from some hospital, dispensary, or obstetrical society approved by the Board of Health, or if she produces evidence from two legally qualified medical practitioners registered in New South Wales that she is a person of good character and qualified to act as a midwife. From and after twelve months from the date of the establishment of the midwives' register no woman shall be entitled to recover any charge for services rendered as midwife unless registered. The Board of Health may frame rules regulating the method and subjects of the qualifying examination.

The Native Mydriatic Plants of Queensland.

The mydriatic properties of Duboisia myoporoides were discovered by the late Dr. Joseph Bancroft of Brisbane in 1877, and by him the drug was introduced into medical use. Dr. Joseph Lauterer of Brisbane has been recently investigating the active principles of this and other mydriatic plants. He finds that the Duboisia myoporoides contains hyoscyamine in the old leaves and twigs, and scopolamine in the fresh young leaves. At the time when the flowers start to bud the leaves are richest in alkaloids, containing 65 per cent. of water and 0·30 per cent. of alkaloids. In the winter time a much smaller quantity, as low as 0·03 per cent., is present. Dry leaves contain 0·97 per cent. of alkaloids, being much stronger than belladonna leaves. Duboisia leichardtii contains mostly amorphous scopolomine and is richer in alkaloids. Brugmansia arborea mill and brugmansia knightii, natives of South America acclimatised in Queensland, contain less alkaloids in their leaves than the Duboisia, consisting of two-thirds hyoscyamine, the rest atropine. As an average one part of alkaloids is equal to 650 of radix hyoscyami, 600 of semina daturæ, 550 of radix daturæ and folia hyoscyami, 500 folia daturæ, 300 folia brugmansiæ, 150 folia belladonnæ, 130 folia Duboisiæ.

Anæmia Due to Ankylostomum Duodenale.

In the November number of the *Australasian Medical Gazette* Dr. C. H. Lawes records two cases of anæmia caused by the presence of the ankylostomum duodenale. Both patients presented intense anæmia, with œdema of the feet and eyelids, enlargement of the liver, cardiac murmurs, and no albuminuria. The ova of the ankylostoma were found in the fæces. One patient died, and post mortem the duodenum was found to be very congested and contained a great number of the parasites adherent to the mucous membrane, a few were found in the jejunum, and the lowest eight feet and a half from the pylorus. The second patient was being treated with thymol with, apparently, some improvement.

Dec. 20th, 1895.

Obituary.

BERTRAM HUNT, M.B. OXON., M.R.C.S. ENG.

AFTER a general education at Harrow and University College, Oxford, where he occupied a prominent and representative position, Bertram Hunt entered on the study of medicine at St. Bartholomew's Hospital, and qualified as M.R.C.S. Eng. and M.B. Oxon. in 1884. For a time he settled down in Rosary-gardens, but soon removed to Oxford and devoted himself to general practice. Original research, however, attracted him more strongly than the practical details of his profession, and being fairly well off pecuniarily he in 1892 went abroad and studied pharmacology under Ribbert at Zürich, and later bacteriology at Munich under Buchner and Pappeiner. The outcome of this work was to some extent published in a paper on the Action of Methylene Blue on Löffler's Bacillus with Clinical Suggestions.[1] In the autumn of 1894 he returned to London and was appointed to supervise the manufacture of antitoxin in connexion with the Institute of Preventive Medicine. While holding this office Dr. Hunt opened in a very able address the discussion on the antitoxic treatment at the Pathological Society in March, 1895. His official work was carried out with untiring energy and zeal, but the strain and responsibility proved too much for his health, and eventually necessitated his retirement. Of strikingly handsome appearance and charming manners, he was withal one of the most retiring of men, and had but little of that power of self-assertion which is such an important factor in achieving worldly success. He could hardly have made an enemy, and though somewhat reticent had many friends, to whom the news of his sudden death, on Dec. 27th, came as a terrible shock. He was thirty-nine years of age, and leaves a widow and three children.

JOHN BURGES WELCH, M.B. LOND., M.R.C.S. ENG., L.S.A.

THE death of Dr. Welch at the age of fifty-two has caused a widespread feeling of regret in the locality in which he practised for a number of years. Dr. Welch was born at Taunton and received his education at the Grammar School of that town. He afterwards entered at King's College, where he obtained several distinctions and became house surgeon and assistant physician accoucheur. Subsequently he obtained the post of resident physician to the General Hospital, Birmtngham, where his accurate clinical knowledge and genial manners gained him many friends. In 1871 he entered into private practice at Handsworth, one of the suburbs of the town. Here he was appointed by the local board as medical officer of health and discharged the duties with much carefulness and discretion up to the time of his death. He also for many years was acting physician to the Children's Hospital, Birmingham, on his retirement being appointed on the consulting staff of that institution. Dr. Welch was a man of wide knowledge and varied culture. As a practitioner his public work was faithfully performed, and his early death leaves a gap in Birmingham professional circles that will not be readily filled.

[1] THE LANCET, Sept. 29th and Oct. 6th, 1894.

THE Barbados Branch of the British Medical Association have unanimously voted to Mr. R. B. Anderson the sum of £10 "towards his expenses, whether personal or legal, in his present endeavour to obtain justice."

PRESENTATIONS TO MEDICAL MEN.—Mr. M. H. C. Palmer, M.R.C.S., L.R.C.P. Lond., L.S.A., was the recipient on Jan. 14th of a cheque for a substantial amount raised by the residents and cottagers of the parish of Donnington, Newbury, as a testimonial for services rendered in the village during a recent outbreak of typhoid fever.—Dr. W. Owen Evans of Buckley, near Chester, has been the recipient of a heavy massive gold ring, with suitable inscription, from the members of the Buckley branch of the St. John's Ambulance Association in recognition of his valuable services to the class. The presentation was made by Mr. Davies-Cooke of Gwysaney, Flintshire.

Medical News.

EXAMINING BOARD IN ENGLAND BY THE ROYAL COLLEGES OF PHYSICIANS AND SURGEONS.—The following gentlemen have passed the First Examination of the Board, under the five years regulations, in the subjects indicated, at the January quarterly meeting of the Examiners :—

Chemistry and Physics :—

Addinsell, John Howard, King's College, London.
Allan, Charles Henry, London Hospital.
Anley, Frederick Eustace, Charing-cross Hospital.
Attwood, Richard Denton, Guy's Hospital.
Auchmutty, Compton Henry, Westminster Hospital.
Bagshawe, Herbert Vale, Guy's Hospital.
Bailey, William Arthur, University College, Liverpool.
Bartlett, Charles Eastty, Guy's Hospital.
Birch, Charles, Mason College, Birmingham.
Blathwayt, Arthur de Visme, University College, London.
Bodey, Thomas Munn, St. Bartholomew's Hospital.
Brandon, Arthur John Spiller, St. Paul's School, West Kensington.
Brind, Alfred Michael, Mason College, Birmingham.
Broomhall, Benjamin Charles, London Hospital.
Bryan, Clement Arthur Douglas, Guy's Hospital.
Bulteel, Cecil Edward, King's College, London.
Carter, Robert Markham, St. George's Hospital.
Chapman, Donald Poyntz, Charing-cross Hospital.
Cocke, Robert Sturgeon, King's College, London.
Cruise, Richard Robert, St. Mary's Hospital.
David, David Morgan, St. Mungo's College, Glasgow.
Dodd, Stanley, Westminster Hospital.
Doubble, Meredith Sedgwick, Charing-cross Hospital.
Downer, Clarence Herbert, King's College, London.
Dudding, John Scarbrough, London Hospital.
Eddowes, William Black, St. Paul's School, West Kensington.
Esser, Samuel Jonathan David, London Hospital.
Facey, Reginald Ambrose, St. Mary's Hospital.
Flewitt, Charles York, Mason College, Birmingham.
Flint, Harold Edward, St. Bartholomew's Hospital.
Fowler, Edwin Samuel George, Yorkshire College, Leeds.
Gaitskell, Charles Edward, Guy's Hospital.
Gómez, Francisco José, King's College, London.
Hawes, Colin Sadler, St. Bartholomew's Hospital.
Hawkes, Alfred Ernest Underwood, University College, Liverpool.
Hemsted, Henry, University College, Bristol.
Hingston, Clayton Alexander Francis, Middlesex Hospital.
Hodgson, Harold West, London Hospital.
Hogan, Roger Joseph, London Hospital.
Jefferiss, Frederick Burroughs, King's College, London.
Jefferiss, Jain Mackinnon, King's College, London.
Jones, Bertrand Seymour, St. Thomas's Hospital.
Jones, Ernest Samuel, University College of South Wales, Cardiff.
Jones, Frederick John Felix, Guy's Hospital.
Keigwin, George John William, London Hospital.
Lakeman, Jasper, London Hospital.
Leclézio, George Joseph Alexis, St. Bartholomew's Hospital.
Lister-Kaye, Alan, Guy's Hospital and Birkbeck Institution.
Mayer, Thomas Frederick Gisborne, London Hospital.
Mitchell, Edward Percival, Guy's Hospital.
Moore, Leonard Augustine, University College, Bristol.
Morgan, John David, St. Mary's Hospital.
Muir, Berthold, Guy's Hospital.
Norton, John Chalmers, University College, Bristol.
Oliver, Arthur Cardell, University College of South Wales, Cardiff.
Palmer, Charles Ambrose, St. Thomas's Hospital.
Parkinson, Harold Raby, Owens College, Manchester.
Parrott, John Norman, St. Mary's Hospital.
Peirce, Thomas James, St. George's Hospital.
Price, Clifford, University College of South Wales, Cardiff.
Prichard, John Llewelyn, University College, Liverpool.
Quinby, Frank Gray, University College, Liverpool.
Rashleigh, Hugh George, Guy's Hospital.
Ridge, Edwyn Manners, London Hospital.
Roche, Ivan Joseph, Charing-cross Hospital.
Rudhall, John Reginald, St. Paul's School, West Kensington.
Rutherford, Thomas Corrie, St. Paul's School, West Kensington.
Sanders, Edward Arthur, King's College, London.
Scott, Henry Martin, Charing-cross Hospital.
Shattock, Charles Robert, St. Paul's School, West Kensington.
Smith, Leonard Satchwell, Mason College, Birmingham.
Stephens, Henry Zouch, St. Thomas's Hospital.
Sykes, Walter, Owens College, Manchester.
Thomas, William Murray, Guy's Hospital.
Thompson, Cecil Charles Brandon, St. Bartholomew's Hospital.
Vawdrey, Percy Llewellyn, St. Bartholomew's Hospital.
Walters, Charles Ferrier, University College, Bristol.
Walton, George Francis, St. George's Hospital.
Waters, James, Middlesex Hospital.
Weston, Herbert Ernest, St. George's Hospital.
Whatley, James Lawson, Guy's Hospital.
White, Charles Vaughan, St. Thomas's Hospital.
White, Cyril Charles Coleby Kirke, St. Bartholomew's Hospital.
Wilshaw, Thomas Ratcliffe, Mason College, Birmingham.
Winterbottom, Rayner, University College, London.
York, Thomas, Westminster Hospital.
Yvanovich, Guilherme Antonio, St. Thomas's Hospital.

Practical Pharmacy :—

Bennett, Charles Harold, St. Mary's Hospital,
Beverley, Kenneth Harold, University College, Bristol.
Burgess, Percy Charles, Middlesex Hospital.
Clarke, Arthur Allan Foster, St. Thomas's Hospital.
Daly, Frederick James Purcell, London Hospital.
Flewitt, Charles York, Mason College, Birmingham.
Hannah, Frank, Edinburgh, Manchester, and Liverpool.
Harris, Herbert George, St. Bartholomew's Hospital.
Hulseberg, Emile Costern, Westminster Hospital.
Jones, Lewis, St. Bartholomew's Hospital.
Kerfoot, Stanley James, London Hospital.
Newport, Alex. Charles, Charing-cross Hospital.
Parker, Christian, London Hospital.
Storrs, William Townsend, St. Bartholomew's Hospital.
Tayler, George Padgett, St. Bartholomew's Hospital.
Winterbotham, Rayner, University College, London.

Elementary Biology :—

Addinsell, John Howard, King's College, London.
Argles, Ernest Edward, St. Mary's Hospital.
Bailey, William Arthur, University College, Liverpool.
Baker, Harry Cecil, St. Mary's Hospital.
Bastian, William, University College, London.
Bateman, Herbert Raymond, St. Thomas's Hospital.
Beale, Joseph Richard, St. Thomas's Hospital.
Bell, Robert John, Charing-cross Hospital.
Bettinson, George, St. Mary's Hospital.
Bishop, Frank Russell, Charing-cross Hospital.
Bonney, Ernest Henry, Charing-cross Hospital.
Brinton, Arthur Green, Mason College, Birmingham.
Candler, John Pycock, Charing-cross Hospital.
Clayton, John Cecil, University College, Bristol.
Coombes, Henry Reginald, Westminster Hospital.
Cross, Gerald Coneybeare, Middlesex Hospital.
Cruise, Richard Robert, St. Mary's Hospital.
Davies, Enoch Howell, University College of South Wales, Cardiff.
Dawson, Edwin Norman de Vere, St. Thomas's Hospital.
Deas, Percival Bruce, St. Mary's Hospital.
De Morgan, Augustus, St. Mary's Hospital.
Denniston, William Edward, St. Thomas's Hospital.
Dixon, Godfrey Brookes, Charing-cross Hospital.
Donaldson, Samuel, St. Mary's Hospital.
Downer, Clarence Herbert, King's College, London.
Elliott, James Warner, St. Mary's Hospital.
Faulkner, Erasmus Oakes, St. Mary's Hospital.
Fisher, Charles, St. Bartholomew's Hospital.
Hannay, Maurice Gilbert, Charing-cross Hospital.
Harris, William Trengweath, St. Thomas's Hospital.
Harrison, Reginald Temple, St. George's Hospital.
Harrison, William Rhodes, St. Mary's Hospital.
Hodgson, Harold West, London Hospital.
Hodgson, Robert Edward, St. Mary's Hospital.
Hasken, William Henry Martin, St. Thomas's Hospital.
Jameson, Archibald Douglas, St. Thomas's Hospital.
Jones, Richard Arthur, Charing-cross Hospital.
Last, Cecil Edward, St. George's Hospital.
Manning, Ernest John, St. Mary's Hospital.
Martin, John Lemon, St. Mary's Hospital.
Morgan, John David, St. Mary's Hospital.
Morrison, James Frederick, London Hospital.
Newling, Harry Tudor, St. Mary's Hospital.
Page, Shirley, Mason College, Birmingham.
Pitts, Arthur Gentry, Charing-cross Hospital.
Pooley, John Milnes, St. Mary's Hospital.
Pretty, Harold Cooper, University College, London.
Price, Clifford, University College of South Wales, Cardiff.
Quinly, Frank Gray, University College, Liverpool.
Ramsay, Palmer Devoy, St. Mary's Hospital.
Sall, Ernest Frederick, St. Mary's Hospital.
Sells, Lionel, St. Thomas's Hospital.
Staines, Tom Fenn, King's College, London.
Stanley, John Brentnall, Mason College, Birmingham.
Stevenson, Francis Daniel, St. George's Hospital.
Thompson, Joseph Bernard, University College, London.
Tytheridge, Ainslie Burton, St. Mary's Hospital.
Vores, Cyril Preston, Westminster Hospital.
Wynne, Graham Shaw Arnold Smith, St. Bartholomew's Hospital.

The following gentlemen passed the Second Examination of the Board in the subjects indicated at a meeting of the examiners on Thursday, the 16th :—

Anatomy and Physiology.—Roland Harrison Allport, John Lionel Taylor, and Hugh Leigh Norris, students of St. Thomas's Hospital; Allan George Reid, James Adrian McComb, and Albert Edwin Cardwell, of London Hospital; Frederick Cecil Forster and Frederick Joseph Wilfred Sass, of St. Mary's Hospital; Percy Cornelius Barham, Alexander George Higgins, and James Gerald Fayrer Hasken, of St. Bartholomew's Hospital; Henry Durbridge and Harry Carlile Sturdy, of Guy's Hospital; Donald John Armour, of Toronto University, Canada; Charles Daniel Parfitt, of Trinity College, Toronto, and St. Bartholomew's Hospital; and Augustine Patrick Douglas Cleary, of Bellevue Medical College and the University of Virginia, U.S.A.

Anatomy only.—Lee Danby Buxton Cogan, of Guy's Hospital, and Charles Thomas McClure, of London Hospital.

Eighteen gentlemen were referred in both subjects and two in Physiology only.

The following gentlemen passed the First Examination of the Board in the subjects indicated under the four years Regulations :—

Chemistry, including Chemical Physics :—

Clemens, James Ross, Cambridge University.
Nicol, Burton Alexander, Charing-cross Hospital.
Simms, Clifford Greville, Middlesex Hospital.
Walmisley, Nicholas, St. Bartholomew's Hospital.
Weldon, Walter Ivan, St. George's Hospital.
Widegren, Mathias Wilhelm Everhead, St. Thomas's Hospital.

Materia Medica :—

Allen, Lancelot Lloyd, St. Bartholomew's Hospital.
Andrews, Cecil Edward, London Hospital.
Bartlett, Lionel Jasper, St. George's Hospital.
Blakiston, Frederick Cairns, St. Thomas's Hospital.
Dudgeon, Herbert William, Guy's Hospital.
Ereaut, Harold John, Westminster Hospital.

Hancock, Edward Dawbney, Guy's Hospital.
Harvey, Frederic, St. Bartholomew's Hospital.
Higgins, Charles Patrick, Guy's Hospital.
Holden, Hugh Caleb, Guy's Hospital.
Humphrys, Arthur Armitage, St. Bartholomew's Hospital.
Hyde, Reginald Henry, University College, London.
Jackson, Hadley Charles, University College, London.
Jackson, Wilfrid Anthony Legh, Mason College, Birmingham.
Kell, Edmund Delacourt, University College, London.
Lloyd, William, London Hospital.
Meacock, Henry Charles, St. Thomas's Hospital.
Nicol, Burton Alexander, Charing-cross Hospital.
Nuttall, Henry Davenport, Edinburgh University.
Pegg, John Henry, St. Thomas's Hospital.
Penrose, Arthur Wellesley, Guy's Hospital.
Rice, Hubert Richard, London Hospital.
Smith, Charles Vincent, University College, London.
Thompson, Francis Barrallier, St. George's Hospital.
Todd, Arthur Rochefort, University College, London.

Elementary Physiology:—

Goode, George Ernest, London Hospital.
Holman, Augustus Frederick, St. George's Hospital.
Hort, Frederick Aylmer, Middlesex Hospital and Cambridge University.
Howlett, John Kitton, Cambridge University.
Jones, Alfred, London Hospital.
Lewis, Lewis Evan, University College of South Wales, Cardiff.
Martin, Louis Charles, Guy's Hospital.

SOCIETY OF APOTHECARIES OF LONDON.—The following candidates passed in the under-mentioned subjects:

Surgery.—W. Benton, Charing-cross Hospital; W. Thompson, St. Bartholomew's Hospital; E. W. Herrington, St. Mary's Hospital; and H. E. Wise, Middlesex Hospital.
Medicine, Forensic Medicine, and Midwifery.—E. E. Cornaby, Cambridge; J. H. Crawshaw, London and Leeds; W. Hampson, St. Bartholomew's Hospital; M. M. Townsend, King's College Hospital; and H. E. Wise, Middlesex Hospital.
Medicine and Midwifery.—F. C. Collinson, Leeds.
Forensic Medicine and Midwifery.—T. G. King, London Hospital; W. McCall, Charing-cross Hospital; C. H. Maskew, Birmingham; add H. C. Wimble, St. Bartholomew's Hospital.
Midwifery.—F. R. M. Heggs, Birmingham; and G. S. Taylor, Manchester.
Medicine.—E. G. Adams, Royal Free Hospital; H. W. Silver, Charing-cross Hospital; and W. S. Webb, London Hospital.
Forensic Medicine.—M. Orange, Royal Free Hospital.

To Messrs. Benton, Cornaby, Hampson, Silver, Townsend, Webb, Wise, and Miss Adams were granted the diploma of the society entitling them to practice Medicine, Surgery, and Midwifery.

ROYAL MICROSCOPICAL SOCIETY.—On Jan. 15th the annual meeting of this society took place, the president, Mr. A. D. Michael, F.L.S., in the chair. After the annual report and the treasurer's statement of accounts had been read and adopted, the following were elected as officers and council for the ensuing year:—President: Mr. Albert D. Michael, F.L.S. Vice-presidents: Rev. Edmund Carr, M.A., F.R.Met.S.; Mr. Frank Crisp, LL.B., B.A., V.P. and Treas. L.S.; Mr. Richard G. Hebb, M.A., M.D., F.R.C.P.; and Mr. Edward Milles Nelson. Treasurer: Mr. William Thomas Suffolk. Secretaries: Professor F. Jeffrey Bell, M.A., and Rev. W. H. Dallinger, LL.D., F.R.S. Members of Council: Mr. Conrad Beck; Mr. Alfred W. Bennett, M.A., B.Sc., F.L.S.; Mr. Robert Braithwaite, M.D., M.R.C.S., F.L.S.; Mr. Thomas Comber, F.L.S.; Mr. Edward Dadswell; Mr. George C. Karop, M.R.C.S.; the Hon. Sir Ford North; Mr. Thomas H. Powell; Mr. Charles F. Rousselet; Professor Charles Stewart, F.L.S.; Mr. John Jewell Vezey; and Mr. Thomas Charters White, M.R.C.S., L.D.S. The President then delivered his annual address. The subject taken was the Anatomy of the Acari. It was pointed out that the ordinary text-book definition of an acarus, as a creature in which abdomen and cephalo-thorax are completely fused, was not correct, but that still the great characteristic of the anatomy is concentration. This was illustrated by the President's recent researches relative to the brain and nerves of the hydrachnidæ (water-mites) and other families. The address then dealt with the alimentary organs fully, and several remarkable modifications of the different organs to meet the wants of various creatures were explained. It was mentioned that the mandibles of three of the great families of acari were chelate, like a lobster's claw, but that in each family a single genus only had saw-like mandibles, and the remarkable life-histories of some of these acari, including that traced by Yensen of Copenhagen in 1895, were explained. Coroneberg's statement that the mid-gut of certain predatory acari ended blindly and did not communicate with an anus, and the entire failure of several other anatomists, including the lecturer, to find any such communication, were then referred to, and it was considered whether the condition of things now fairly well known to exist in many larval insects such as some hymenoptera, diptera, &c., that the mid-gut was entirely detached from the hind-gut, might possibly persist to a later period in some predatory acari which lived only by sucking the juices of their victims.

FOOTBALL CASUALTY.—On Saturday last, in a match at Brighton between the Silver Star and Royal Irish Rifles (II.) teams, a player fractured his left fibula.

PLYMOUTH MEDICAL SOCIETY.—At a clinical meeting held on Jan. 4th, Dr. Hingston, President, being in the chair, the following cases and specimens were shown:—Mr. Aldous: A girl aged eighteen years, with a Nævus at the Right Base of her Tongue. About seven months ago this was incised without benefit. After injecting six drops of a 4 per cent. solution of cocaine Mr. Aldous used the galvano-cautery. Considerable pain ensued for a week, and the tumour, previously the size of a marble, shrank.—Mr. Webber: (1) Encephaloid Cancer of the Liver and Posterior Wall of the Lesser Curvature of the Stomach. The patient, a woman aged sixty years, was seen for inguinal hernia, and the epigastrium was then found to be occupied by a coarsely nodular tumour moving on inspiration. Vomiting occurred only twice throughout the illness. (2) Scirrhous Cancer of the Stomach removed from a man aged fifty-six years, who died exhausted after four months' epigastric pain and sickness. Heaving pulsation and a marked bruit were present, and the question of abdominal aneurysm was discussed but rejected. The stomach was found to be contracted, with a diffuse, hard growth and walls fully half an inch thick.—Dr. Pethybridge: Slides of Streptococcus Pyogenes, Bacillus Tuberculosis *in situ*, Anthrax Colonies, and Pneumonic Fibrin Network.

DIPHTHERIA IN LONDON.—Diphtheria in London declines slowly, if, indeed, it can be held to be really a declining disease. The death-roll from the malady continues to be heavy, and constantly exceeds the decennial average for the individual weeks as they come round. In the four weeks ending 1895 the notified cases in London reached a total of 1136, as compared with 1269 in the preceding four weeks. In the earlier period 10 and in the later period only 7 districts had upwards of 50 notifications each, the total cases in the 10 districts being 734 and in the seven districts only 532. In the earlier period the weekly average of notified cases was 317, but in the later one it has fallen to 284. Then, again, in the earlier four weeks every sanitary area was invaded, but of the 43 there were 4 free from the malady in the last four weeks of the year. In the matter of death the two compared periods are practically alike in so far as mere numbers are concerned, the 268 deaths in the first giving place to 265 in the second period. The mortality per case in the latter period was, however, the heavier. Last year the notified cases arising in the several four-weekly periods are instructive as showing that there have been markedly epidemic times in London. Thus, up to the middle of May the totals were 677, 500, 488, 562, and 638. Then in the twelve weeks to the middle of August they rose to 718, 1047, and 1097. The ensuing four weeks may be considered as affected by the school holidays, and the cases fell to 811; but only to rise again to 1178, 1305, and 1269. In the last period of the year the number once again fell, this time to 1136, the grand total of notifications for the whole year being 11,426. The 66 registered deaths from diphtheria in London in the first week of the present year gave place to 48 in the second week, ended on Jan. 11th—a number in excess by 16 of the corrected decennial average for the second week of the years 1886-95. The vast majority of the deaths again occurred during the first five years of life. In Islington there were 6 deaths, in Marylebone, Battersea, and Greenwich 4 deaths respectively; and in Paddington and St. Luke's sanitary areas 3 deaths each. The admissions to hospital were 96, as against 104, 93, and 98. There remained in hospital on Saturday, Jan. 11th, 658 patients, as compared with 683 on the Saturday preceding. In the Outer Ring there were, in addition, 12 deaths from diphtheria in the week ended Jan. 11th, and of these 4 belonged to West Ham and 5 to Edmonton Union. This northern suburb of London is seemingly passing through a period of prevalence of diphtheria, judging by the death returns for some time past. Both in the case of London proper and of the Outer Ring the figures of last week ended Jan. 18th were such as to show that diphtheria has still a firm hold on the younger members of the community. The 48 deaths of the previous

week in the County of London gave place to 59, a total which exceeded the corrected decennia' average for the third week of the years 1886-95 by 30. In other words, we had a number of deaths more than twice that usual in the week in question. The sanitary areas of Islington, Hackney, Greenwich, and Plumstead had 19 deaths credited to them—namely, 6, 5, 4, and 4 respectively. The ages at death were, in the first year of life, 4, in the next four years, 39, and the remaining 16 deaths occurred in the succeeding fifteen years of life. The admissions to hospital in the week were 99 in number, and the patients remaining under treatment last Saturday 661. In the Outer Ring the registered deaths were 4 in the Edmonton Union, 9 in West Ham, and 1 respectively in Croydon, Wimbledon, Bexley, and Willesden.

Appointments.

Successful applicants for Vacancies, Secretaries of Public Institutions, and others possessing information suitable for this column, are invited to forward it to THE LANCET *Office, directed to the Sub-Editor, not later than 9 o'clock on the Thursday morning of each week for publication in the next number.*

ARBUCKLE, H. W., M.D. Aberd., L.F.P.S. Glasg., L.R.C.P. Edin., D.P.H. Camb., has been reappointed Medical Officer of Health for Thorne.

ATKINSON, J., M.B., C.M. Edin., has been appointed Medical Officer to Felsted School, Essex.

BLUMBERG, H. D'A., L.R.C.P., L.R.C.S. Edin., L.F.P.S. Glasg., has been reappointed Honorary Medical Officer to the Hydropathic Hospital, Southport.

BRIDGER, SYDNEY, L.R.C.P. Lond., M.R.C.S., has been appointed Assistant House Surgeon to the Devonshire Hospital, Buxton.

DEANS, WM., M.B., C.M. Aberd., has been appointed Medical Officer for the Ewood Bridge Sanitary District of the Haslingden Union.

DENNE, FRANCIS V., L.R.C.P. Lond., M.R.C.S., L.S.A., has been appointed Third Honorary Attending Medical Officer to the Pimlico-road Free Dispensary, vice Andrew G. Fausset, retired.

DODSWORTH, F. C., L.R.C.P. Lond., M.R.C.S., has been reappointed Medical Officer of Health by the Chiswick District Council.

FOULERTON, ALEX. G. R., F.R.C.S. Eng., D.P.H. Camb., has been appointed Demonstrator of Biological Chemistry to the British Institute of Preventive Medicine.

GOULD, JOHN E., M.D. Lond., D.P.H. Camb., L.R.C.P., Lond., M.R.C.S., has been appointed Medical Officer of Health and Physician to the Fever Hospital for the County Borough of Bolton, vice F. E. Adams, resigned.

GREENE, THOMAS A., L.R.C.P., L.M., L.R.C.S. Irel., has been appointed Assistant Medical Officer to the Ennis District Lunatic Asylum.

GREENWOOD, T. P., L.R.C.P. Edin., M.R.C.S., has been appointed Medical Officer of Health by the Ketton and Uffington Rural District Councils.

GROVES, H. C., L.R.C.P., L.R.C.S. Irel., has been appointed Deputy Medical Officer of Health for the Borough of Monmouth.

HARVEY, FRANK, M.R.C.S., has been appointed Medical Officer of Health for Padstowe.

HORNER, W. E. L., M.B. Lond., has been appointed House Physician to the Derbyshire Royal Infirmary, vice H. J. Pechell, resigned.

KELLY, T. GORDON, B.A., M.D. Dubl., has been appointed Examiner to the St. John Ambulance Association.

KENWORTHY, A. B., M.B., C.M. Edin., has been reappointed Honorary Physician to the Hydropathic Hospital, Southport.

KEY, A. COOPER, M.D. St. And., M.R.C.P. Edin., and L.S.A. Lond., has been appointed Honorary Physician to the Royal Society of Musicians of Great Britain.

MILES, ALEXANDER, M.D., F.R.C.S. Edin., has been appointed Surgeon to the Leith Hospital, vice W. A. Finlay, resigned.

NORGATE, ROBERT HENRY, L.R.C.P. Lond., M.R.C.S., has been appointed Resident Medical Officer to the Fishponds Workhouse of the Bristol Union.

OLVER, R. S., M.R.C.S., has been appointed House Surgeon to the Derbyshire Royal Infirmary, vice C. H. Taylor.

PRINGLE, G. L. R., M.B., C.M. Edin., has been appointed Medical Officer for the Third Sanitary District of the Bridgwater Union.

RICHARDS, G. P. P., M.B., M.S. Edin., has been reappointed Honorary Medical Officer to the Hydropathic Hospital, Southport.

SAVILL, T. D., M.D. Lond., M.R.C.S., D.P.H. Camb., has been appointed Physician to the Hospital for Nervous Diseases, Welbeck-street, London.

STOPFORD, ROBT., L.R.C.P., L.M. Irel., has been reappointed Honorary Physician to the Hydropathic Hospital, Southport.

THOMAS, J. T., L.R.C.P. Lond., M.R.C.S., has been appointed Medical Officer of Health by the Camborne District Council.

WILKINSON, JOHN, M.B., C.M. Edin., has been appointed Medical Officer of Health for the Boston Rural Sanitary District, vice W. Clegg, resigned.

WILSON, S. WESLEY, L.R.C.P., L.R.C.S. Irel., has been appointed Registrar to the Branch Medical Council, Ireland, vice R. L. Heard, resigned.

Vacancies.

For further information regarding each vacancy reference should be made to the advertisement (see Index).

BOOTLE BOROUGH HOSPITAL.—Senior House Surgeon. Salary £80 per annum, with board, washing, &c.

CHICHESTER INFIRMARY.—House Surgeon. Salary, £80 per annum, with board, lodging, and washing.

DUNDEE ROYAL INFIRMARY.—Resident Clinical Assistant. Board, lodging, and washing provided.

HOSPITAL FOR WOMEN (THE LONDON SCHOOL OF GYNÆCOLOGY), Soho-square, W.—Clinical Assistants.

MIDDLESEX HOSPITAL MEDICAL SCHOOL, Cleveland-street, W.—Lecturer on Anatomy, and a Lecturer on Physiology.

OLDHAM INFIRMARY.—Junior House Surgeon. Salary £50 per annum, with board and residence.

PARISH OF ST. GILES, CAMBERWELL.—First and Second Assistant Medical Officers for the Infirmary at Havil-street, Camberwell, and the Workhouse at Gordon-road, Peckham. The salary of the former £120 per annum, rising £10 annually to £150, with apartments, board, and washing; the salary of the latter (the appointment for one year only) £50, with apartments, board, and washing. Applications to the Clerk to the Guardians Offices, 29, Peckham-road, S.E.

POPLAR HOSPITAL FOR ACCIDENTS, Blackwall, E.—Second Assistant Resident House Surgeon. Salary £50 per annum, with board and and lodging.

ST. MARK'S HOSPITAL, City-road, E.C.—Assistant Surgeon.

ST. THOMAS'S HOSPITAL, Westminster-bridge.—Assistant Ophthalmic Surgeon.

SEAMEN'S HOSPITAL SOCIETY.—Honorary Visiting Surgeon for the Branch Hospital, Royal Victoria and Albert Docks. Applications to the Secretary, Greenwich.

THE METROPOLITAN ASYLUMS BOARD.—Dispenser at the Eastern Fever Hospital, The Grove, Homerton, N.E.—Salary 35s. per week, with dinner daily. Applications to the Medical Superintendent at the Hospital.

WEST LONDON HOSPITAL, Hammersmith-road, W.—Assistant Physician.

UNIVERSITY OF GLASGOW.—Four Examiners for Degrees in Medicine, to examine in Anatomy, Midwifery, Medical Jurisprudence, and Botany respectively. Salary for the Examinership in Anatomy is £40 per annum, and for the others £30 per annum.

Births, Marriages, and Deaths.

BIRTHS.

ALEXANDER.—On Jan. 14th, at Mayhurst, Paignton, Devon, the wife of James Alexander, M.D. Dubl., of a daughter.

JONES.—On Jan. 15th, at Ty-Mawr, Aberdare, the wife of R. I. Trevor Jones, M.R.C.S., L.R.C.P. Lond., of a son.

PARR-DUDLEY.—On Jan. 15th, at The Grove, Cossington, Leicester, the wife of Arthur D. Parr-Dudley, M.R.C.S., L.R.C.P. Lond., Barrister-at-law, of a son.

PRIDIE.—On Jan. 10th, at Bellmont, Chingford, Essex, the wife of J. F. Pridie, M.B. Edin., of a son.

ROGERS-TILLSTONE.—On Jan. 19th, at Ditton Holme, near Maidstone, the wife of J. M. Rogers-Tillstone, M.R.C.S., L.R.C.P. Lond., of a daughter.

SAW.—On Jan. 17th, at Walmer, Lake-street, Perth, West Australia, the wife of A. J. Henton Saw, Esq., M.A., M.B., B.C. Cantab., of a son. (By cable.)

THOMPSON.—On Jan. 19th, at Lynton, Chapter-road, Willesden-park, N.W., the wife of G. W. Thompson, M.B. Cantab., of a daughter.

WHITEHEAD REID.—On Jan. 16th, at Canterbury, the wife of Thomas Whitehead Reid, of a son.

WOOLLETT.—On Jan. 16th, at 35, Telford-avenue, Streatham-hill, London, the wife of C. J. Woollett, M.D. Lond., F.R.C.S. Eng., of a daughter.

WYNNE.—On Jan. 16th, at Clonmel, County Tipperary, the wife of J. Darley Wynne, M.B. Dubl., M.R.C.S., of a son.

MARRIAGES.

FROHWEIN—HEFFERNAN.—On Jan. 18th, at St. Bartholomew's, Southsea, Otto Fraser Frohwein, M.R.C.S. L.R.C.P., Lond., of Burton-on-Trent, to Eliza Mary (Trot), elder daughter of John Harold Heffernan, C.B., R.N., of Southsea.

HEATH—BULL.—On Jan. 16th, at St. Leonard's Church, Streatham, Arthur Douglas Heath, M.D. Lond., of Edgbaston, to Ethel Mary, only daughter of Benjamin Bull.

METTAM—SENIOR.—On Jan. 15th, at St. George's Church, Sheffield, Wilford Mettam, Surgeon, of Darnell, to Gertrude, second daughter of George Senior, Elmfield, Sheffield.

ORR—CARLISLE.—On Jan. 15th, at Bowdon Parish Church, Robert Scott, third son of the late Robert Scott Orr, M.D., of Glasgow, to Catherine, youngest daughter of the late John Carlisle, of High Lawn, Bowdon, Cheshire.

PETTER—ROBSON.—On Jan. 16th, at St. Cuthbert's, Darlington, by the Rev. F. W. Mortimer, Vicar of Darlington, assisted by the Rev. W. D. H. Petter, cousin of the bridegroom, Walter Petter, M.B., C.M., of Stanhope-road, Darlington, to Edith Mary, eldest daughter of James Hutchinson Robson, of Darlington.

REVILL—HOWARD.—On Jan. 15th, at Nocton, by the Rev. H. Footman, Vicar, assisted by the Rev. R. G. Howard, Vicar of Hovingham, cousin of the bride, G. Leslie Revill, of Heighington, son of the late G. R. Revill, of Barnes, to Mary, daughter of Edward Howard, of The Rise, Nocton, Lincoln.

DEATHS.

ADSETTS.—On Jan. 18th, at Osmaston-road, Derby, John Adsetts, M.R.C.S., Surgeon-Major (retired), aged 59 years.

GREGSON.—On Jan. 17th, at Harley-street, Cavendish-square, London, George Gregson, M.R.C.S., for many years Surgeon to the Dental Hospital of London.

PRINCE.—On Jan. 13th, at Bexhill, Frederick Prince, M.R.C.S., formerly of Sawston, Cambs., aged 83 years.

WELCH.—On Jan. 13th, at Elm Villa, Soho-hill, Handsworth, Birmingham, J. B. Welch, M.B. Lond., aged 52 years.

N.B.—A fee of 5s. is charged for the insertion of Notices of Births, Marriages, and Deaths.

Medical Diary for the ensuing Week.

OPERATIONS.

METROPOLITAN HOSPITALS.

MONDAY.—London (2 P.M.), St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), St. George's (1 P.M.), St. Mark's (2 P.M.), Chelsea (2 P.M.), Samaritan (Gynæcological, by Physicians, 2 P.M.), Soho-square (2 P.M.), Royal Orthopædic (2 P.M.), City Orthopædic (4 P.M.), Gt. Northern Central (2.30 P.M.).

TUESDAY.—London (2 P.M.), St. Bartholomew's (1.30 P.M.), Guy's (1.30 P.M.), St. Thomas's (3.30 P.M.), Westminster (2 P.M.), West London (2.30 P.M.), University College (2 P.M.), St. George's (1 P.M.), St. Mary's (1.30 P.M.), St. Mark's (2.30 P.M.), Cancer (2 P.M.).

WEDNESDAY.—St. Bartholomew's (1.30 P.M.), University College (2 P.M.), Royal Free (2 P.M.), Middlesex (1.30 P.M.), Charing-cross (3 P.M.), St. Thomas's (2 P.M.), London (2 P.M.), King's College (2 P.M.), National Orthopædic (10 A.M.), St. Peter's (2 P.M.), Samaritan (2.30 P.M.), Gt. Ormond-street (9.30 A.M.), Gt. Northern Central (2.30 P.M.).

THURSDAY.—St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), University College (2 P.M.), Charing-cross (3 P.M.), St. George's (1 P.M.), London (2 P.M.), King's College (2 P.M.), Middlesex (2 P.M.), Soho-square (2 P.M.), North-West London (2 P.M.), Chelsea (2 P.M.), Great Northern Central (Gynæcological, 2.30 P.M.).

FRIDAY.—London (2 P.M.), St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), Guy's (1.30 P.M.), Charing-cross (3 P.M.), St. George's (1 P.M.), King's College (2 P.M.), Cancer (2 P.M.), Chelsea (2 P.M.) Gt. Northern Central (2.30 P.M.).

SATURDAY.—Royal Free (9 A.M. and 2 P.M.), Middlesex (1.30 P.M.), St. Thomas's (2 P.M.), London (2 P.M.), University College (9.15 A.M.), Charing-cross (3 P.M.), St. George's (1 P.M.), Cancer (2 P.M.).

At the Royal Eye Hospital (2 P.M.), the Royal London Ophthalmic (10 A.M.), the Royal Westminster Ophthalmic (1.30 P.M.), and the Central London Ophthalmic Hospitals operations are performed daily.

SOCIETIES.

MONDAY.—SOCIETY OF ARTS.—8 P.M. Dr. J. A. Fleming: Alternate Current Transformers. (Cantor Lecture.)

MEDICAL SOCIETY OF LONDON.—8.30 P.M. Dr. Lauder Brunton: On Some of the Difficulties of Diagnosis in Hepatic Disease.—Mr. Knowsley Thornton: Additional Cases of Hepatic Surgery.

TUESDAY.—ROYAL MEDICAL AND CHIRURGICAL SOCIETY (20, Hanover-square, W.).—Dr. H. A. Lediard: Ecchymoses from Natural Causes. Mr. George Ogilvie: The Exceptions to Colles' Law.

SOCIETY OF ARTS.—8 P.M. Mr. Richard Davey: Stamboul, Old and New.

WEDNESDAY.—SOCIETY OF ARTS.—8 P.M. Mr. W. J. Dibdin: Standards of Light.

THURSDAY.—OPHTHALMOLOGICAL SOCIETY OF THE UNITED KINGDOM (11, Chandos-st., Cavendish-sq., W.).—8 P.M. Card Specimens:—Mr. Simeon Snell: Alveolar Carcinoma of Upper Eyelid.—Mr. J. R. Lunn: Nystagmus following an Injury to the Forehead.—Mr. C. D. Marshall: (1) Result of Removal of Metallic Chip from the Vitreous by the Electro-magnet; (2) Cholesteria in the Anterior Chamber.—Messrs. Holthouse and Batten: Peculiar Condition of Optic Discs in a case of Choroido-retinitis. 8.30 P.M. Papers:—Dr. Geo. J. Bull: The Camera in relation to Refractive Error.—Messrs. Eales and Sinclair: Uveal Cyst of Iris.—Dr. F. M. Ogilvie: Optic Nerve Atrophy in three brothers.—Mr. Holmes Spicer: Recurrent Paralysis of Third Nerve with Migraine.

LECTURES, ADDRESSES, DEMONSTRATIONS, &c.

TUESDAY.—ROYAL INSTITUTION.—3 P.M. Prof. Charles Stewart: The External Covering of Plants and Animals: its Structure and Functions.

WEDNESDAY.—NATIONAL HOSPITAL FOR THE PARALYSED AND EPILEPTIC (Bloomsbury).—3 P.M. Lecture by Dr. Gowers.

HOSPITAL FOR CONSUMPTION, &c. (Brompton).—4 P.M. Dr. Green: Therapeutics of Pulmonary Tuberculosis.

ST. JOHN'S HOSPITAL FOR DISEASES OF THE SKIN (Leicester-square, W.C.).—5 P.M. Dr. Morgan Dockrell: Syphilis.

WEST LONDON POST-GRADUATE COURSE (West London Hospital, W.).—5 P.M. Dr. Hunter: Pathological Demonstration.

THURSDAY.—ROYAL INSTITUTION.—3 P.M. Mr. Philip H. Wicksteed: Dante.

FRIDAY.—ROYAL INSTITUTION.—9 P.M. Mr. Sidney Lee: National Biography.

SATURDAY.—ROYAL INSTITUTION.—3 P.M. Prof. C. Hubert H. Parry: Realism and Idealism in Musical Art (with Musical Illustrations).

ST. JOHN'S HOSPITAL FOR DISEASES OF THE SKIN (Leicester-square, W.C.).—5 P.M. Dr. Morgan Dockrell: Tuberculosis of the Skin.

METEOROLOGICAL READINGS.

(Taken daily at 8.30 a.m. by Steward's Instruments.)

THE LANCET Office, Jan. 23rd, 1896.

Date.	Barometer reduced to Sea Level and 32° F.	Direction of Wind.	Dry Bulb	Wet Bulb.	Solar Radiation in Vacuo.	Maximum Temp. in Shade.	Min. Temp	Rainfall.	Remarks at 9.30 A.M.
Jan. 17	30·13	W.	47	45	72	54	40	...	Cloudy
,, 18	30·22	S.W.	48	46	54	50	46	...	Cloudy
,, 19	30·27	S.W.	48	46	55	51	47	...	Cloudy
,, 20	30·45	N.E.	36	35	47	44	35	...	Foggy
,, 21	30·41	N.	38	37	41	41	36	...	Foggy
,, 22	30·23	S.W.	36	35	60	46	35	...	Hazy
,, 23	30·32	E.	36	35	44	40	35	...	Foggy

Notes, Short Comments, and Answers to Correspondents.

EDITORIAL NOTICE.

IT is most important that communications relating to the Editorial business of THE LANCET should be addressed *exclusively* "TO THE EDITORS," and not in any case to any gentleman who may be supposed to be connected with the Editorial staff. It is urgently necessary that attention be given to this notice.

It is especially requested that early intelligence of local events having a medical interest, or which it is desirable to bring under the notice of the profession, may be sent direct to this Office.

Lectures, original articles, and reports should be written on one side of the paper only.

Letters, whether intended for insertion or for private information, must be authenticated by the names and addresses of their writers, not necessarily for publication.

We cannot prescribe or recommend practitioners.

Local papers containing reports or news paragraphs should be marked and addressed "To the Sub-Editor."

Letters relating to the publication, sale, and advertising departments of THE LANCET *should be addressed "To the Manager."*

We cannot undertake to return MSS. not used.

MANAGER'S NOTICES.

THE INDEX TO THE LANCET.

THE Index for the second half-yearly volume for 1895 was given in the issue of Dec. 28th. The practice of supplying loose copies has been discontinued, the Index having been placed in the centre of the journal, whence it can easily be detached, and placed either at the beginning or at the end of the volume.

VOLUMES AND CASES.

VOLUMES for the second half of the year 1895 are now ready. Bound in cloth, gilt lettered, price 18*s*.

Cases for binding the half-year's numbers are also ready. Cloth, gilt lettered, price 2*s*.; by post, 2*s*. 3*d*.

To be obtained on application to the Manager, accompanied by remittance.

WILLIAM PITT, EARL OF CHATHAM.

To the Editors of THE LANCET.

SIRS,—In your instructive review of the "Dictionary of National Biography," in THE LANCET of last week, you mentioned William Pitt, Earl of Chatham. As anything connected with the "Great Commoner," whose name will live for ever in the history of England, is sure to have some interest for many of your readers, I will ask you to kindly allow me to say that I have two relics of him and of his wife,

Hester Grenville, sister of Richard, Earl Temple. The relics are two handsomely emblazoned plates, part of a dessert service of china, which no doubt had been frequently used by the Earl. The centre of each plate is filled with the conjoint shields of the Earl and Lady Hester, who was a baroness in her own right having been created Baroness Chatham in 1761 five years before her husband's elevation to the peerage. On the border of a plate at the top is the Earl's crest—a heron or stork grasping one of the flukes of a cabled anchor—and on the bottom the letter C. On the right side of each plate there is the coronet of Lady Hester, with the letters H. C. below it; and on the left border is the coronet of the Earl, with the letter C. below it. The borders of the plates are freely interspersed with sprays of flowers, and where possible rich gilding is introduced. The supporters of the shields are a stag rampant and a lion rampant gardant, and the motto is, "Benigno Numine"—By God's Blessing. I have another handsome plate with the coat-of-arms of Sir William Pynsent of Burton Pynsent painted on it, which I procured at the same time as the Chatham plates. The Pynsent plate being with the Chatham plates was rather a singular coincidence, when it is remembered that Sir William Pynsent held Lord Chatham in such high estimation that he bequeathed to the Earl his large property of Burton Pynsent in Somerset, although he had never seen him.

I am, Sirs, yours truly,

Lincoln, Jan. 20th, 1896. WILLIAM O'NEILL, M.D., &c.

THE PATHOLOGY OF THE NEW WOMAN.

THE following story is genuine and shows, we think, not only how quickly new terms spread among all classes, but also the decline of a silly craze. For, having sunk to a Clerkenwell slum, the epicene person in question must be on the point of disappearing.

Scene: The out-patient room of a metropolitan hospital. Enter a patient who has been treated for three months or so for myxœdema with thyroid extract.

To her the Physician: "Well, Mrs. ——, I should hardly know you again."

The Patient: "Lor', yes, doctor, down our court they calls me the New Woman."

Fanatic.—We have never heard of the practice. It is so utterly revolting that we hesitate to believe that it has ever been employed; yet the records of the doings of certain Oriental potentates show clearly that no bounds can be set to human cruelty.

Mr. Jno. Packham.—The article was published in THE LANCET of April 21st, 1894, p. 1004.

MEDICAL CARDS.

To the Editors of THE LANCET.

SIRS,—Permit me to call your attention to the enclosed copy of a medical card emanating from a physician. Such side- and bye-ways of practice—and, too, by a University man—are most reprehensible, and deserve the censure of all whose aim is to lead and control public medical opinion. "No man"—as is observed in a leading article in THE LANCET of to-day, quoting from Mr. Dickinson's practical address on Professional Unionism—"is altogether insensitive to the opinion of his followers, and the better his position the more sensitive he is"—or, I would add, ought to be. Such advertisement does, I think, more harm, and lowers the ethics of the profession much more, than the puff direct in the weekly local of the provincial paper, and to a certain section of the profession is more hurtful and is more inexcusable than the medical aid associations, &c., &c.

I am glad to hear from the general practitioner who directed my attention to the card (and who is practising in the neighbourhood of Cavendish-square) that the London and Manchester Assurance Societies have bowed to medical opinion as expressed in THE LANCET and other medical journals and have ceased to circulate handbills with the names of their medical officers. "But," he added, "such cards as this from '——street,' do infinitely more harm, as, by their plainly intimating that 'lower charges will be made' according to circumstances, they directly encroach on the practice of the general practitioner by implying that for small fees the advice of a skilled and learned physician is obtainable. The insertion of this letter would much oblige,

Your obedient servant,

Jan. 18th, 1896. FREDERICK H. ALDERSON, M.D.

[*Copy of Card.*]

"——street,
"Cavendish-square, W.

"First consultation by visit or by letter, with microscopic examination of blood and all excreta, £2 2*s*.

"Each succeeding visit or letter, with same examination, £1 1*s*. Letter of advice and consultation without microscopic examination (where previous microscopic examination has been had) half a guinea.

"Special (and lower) charges will be made in cases of chronic illness requiring constant and prolonged advice.

"Visiting patients at their residences in London and special journeys outside of London are a matter of special terms."

AN INCIDENT IN THE LIFE OF A PROFESSOR.

WHEN M. Jules Bergeron was pronouncing his eulogy of Prof. Gubler before the Académie de Médecine he narrated an interesting episode in the life of the late Beaujon physician. Gubler as a student was exceedingly poor, and it was only by dint of submission to the greatest privation that he contrived to complete his curriculum. His masters were aware of his poverty, and in order to help him one of them recommended him as attendant to a youth of ancient lineage who was the victim of incipient melancholia. Travel having been recommended with a view to the patient's rehabilitation the pair started for Switzerland, where for a time they enjoyed themselves very much and also became great friends. From Switzerland they crossed the Alps into Italy and halted at Milan, the journey so far having been as prosperous as possible. One evening as patient and physician were about to retire for the night the former was suddenly seized with a paroxysm of furious madness. Levelling a pistol, he discharged it point blank at the unfortunate Gubler, who at once fell fainting to the floor, and then grasping a knife the patient proceeded to hack the insensible physician's head in the most savage manner. Alarmed by the noise, the hotel servants then appeared on the scene, and the lunatic was disarmed. Gubler was immediately carried to the hospital, where, almost by a miracle, he eventually recovered from his wounds. The revolver bullet, which lodged in his thorax, was, however, never extracted and to the day of his death the cicatrices on his head were plainly visible, although he wore his hair unusually long in order to conceal them.

Mr. F. J. Duggan.—Our correspondent has not, we think, read our original report, but only abbreviated notices of it. By the report he would have seen that we not only pointed out defects but suggested practical remedies for them. There is nothing to stop Mr. Duggan, or the corporate body of lampmakers which he suggests should be formed from testing various lamps with the view of finding out defects of construction. That is what we did. The results of such inquiry would be a full confirmation of our remarks on these points.

X. Y. Z. is informed that the story is on the face of it an absolute invention. The thing has never occurred, and never can occur.

SCHOOL BOARDS AND FEES FOR MEDICAL ATTENDANCE.

To the Editors of THE LANCET.

SIRS,—Would you kindly inform me through the medium of your valuable journal whether I am justified in claiming a fee from a school board, having been sent for by officials of that body to see a boy who was injured whilst at play in school.—I am, Sirs, yours truly,

Jan. 16th, 1896. MEDICUS.

*** We have been asked this question before. The medical man *must* be paid by someone, and at first sight it would seem that the persons who sent for him should be responsible for the fee. But, in absence as yet of any legal decision to that effect, we cannot take the responsibility of advising our correspondent to attempt to enforce a claim against the school board.—ED. L.

Justitia.—We are to a certain extent of our correspondent's way of thinking. The General Medical Council have rightly defined the use that may be made of the unqualified assistant.

Nemo is advised to consult his family medical man as to the place where he could obtain more special assistance, if such be necessary.

J. P. D.—Our report is the only complete one that has ever been published.

During the week marked copies of the following newspapers have been received:—*Sussex Daily News, Leicester Daily Post, Birmingham Gazette, Halifax Guardian, West London Observer, Grimsby News, Glasgow Herald, Sheffield Independent, North Star, Newcastle Chronicle, Liverpool Courier, Truth, Levant Herald, Umpire, Boston Independent, Bradford Observer, Brighouse Echo, Eastern Evening News, Manchester Courier, South Wales Daily News, Nottingham Guardian, Brighton Gazette, Times of India, Pioneer Mail, City Press, Scotsman, Builder, Sanitary Record, Architect, Liverpool Daily Post, Leeds Mercury, Beverley Recorder, Yorkshire Post, Citizen, Batley News, Bristol Mercury, Berwick Journal, Goole Times, Somerset County Gazette, Mining Journal, Shrewsbury Chronicle, Local Government Chronicle, West Middlesex Standard, Hertfordshire Mercury, Weekly Free Press and Aberdeen Hera'd, Huddersfield Examiner, Reading Mercury, Le Courrier de la Presse, Dewsbury News, Indian Mirror, Tit-Bits, Christian World, Local Government Journa', Surrey Advertiser, General Advertiser, Gloucestershire Chronicle, Glasgow Herald, Yorkshire Evening Post, Scottish Border Record, Christian News (Glasgow), Grantham Journal, Leamington Spa Courier, Bath Pictorial, Essex Telegraph, Lancashire Express, Suffolk Times, Kent Messenger, Banffshire Advertiser, Wellingboro News, South-Eastern Gazette, &c., &c.*

Communications, Letters, &c., have been received from—

A.—Messrs. Allen and Hanburys, Lond.; Messrs. R. Anderson and Co., Lond.; Messrs. Armour and Co., Lond.; Messrs. Attwood and Co., Lond.; Messrs. H. S. and J. A. Ashburn, Manchester; "Animalia," Birmingham, Publisher of.

B.—Dr. R. D. Batten, Lond.; Dr. Barillet, Reims; Mr. S. K. Basu, Patna City, India; Mr. E. S. Bishop, Manchester; Mr. W. F. Brook, Swansea; Mr. S. H. Benson, Lond.; Messrs. Barclay, Bevan and Co., Brighton; Messrs. Burroughs, Wellcome, and Co., Lond.; Messrs. Burgoyne, Burbidges, and Co, Lond.; Brit. Med. Benevolent Fund, Sec. of; Brit. Balneological, &c. Society, Lond., Hon. Sec. of; Beta, Bedford.

C.—Dr. C. W. Chapman, Lond.; Dr. S. Cassisi, Borghesi; Mr. E. T. Collins, Lond.; Mr. W. Cowan, Glasgow; Mr. H. Cartwright, Lond.; Mrs. K. Cargill, Lond.; *Christian World*, Lond., Editor of; Chichester Infirmary, Sec. of.

D.—Dr. C. Dukes, Rugby; Dr. M. Dockrell, Lond.; Dr. W. Dale, Truro; Messrs. Doulton and Co., Lond.; Messrs. Dawson and Sons, Lond.; Dundee Roy. Infirmary, Sec. of.

E.—Messrs. H. & T. C. Edwards, Lond.; E. A. B., Yarbridge.

F.—Dr. G. Fitzgerald, Lond.; Mons. le Docteur Feulard, Paris; Mr. C. F. France, Standisbgate; F. S. D. H., Tillingham; Felix, Lond.

G.—Dr. J. Galloway, Lond.; Dr. C. Godson, Lond.; Dr. D. T. Gilliam, Columbus, Ohio; Dr. J. F. Gemmell, Lancaster; Mr. J. J. Griffiths, Lond.; Mr. J. Greenhalgh, Robin Hood's Bay.

H.—Dr. F. De H. Hall, Lond.; Dr. R. Hutchison, Edinburgh; Dr. R. O. Hawthorne, Glasgow; Dr. J. B. Hill, Durham; Dr. W. S. Hedley, Brighton; Dr. G. A. Herschell, Lond.; Mr. A. G. Hind, St. Heliers, Jersey; Messrs. J. Head and Son, Lond.; Harveian Society, Lond., Hon. Sec. of; Hanover Institute for Nurses, Lond, Lady Supt. of.

I.—Dr. Irvine, Montevideo.

K.—Dr H. R. Kenwood, Lond.; Dr. T. N. Kelynack, Manchester; Mr. R. C. B. Kerin, Lond.; Mr. L. Kidd, Lond.; Messrs. Keen, Robinson, and Co., Lond.; Könyves Kelmán, Budapest.

L.—Mr. T. Laffan, Cashel; Mr. B. Lord, Manchester; Mr. H. K. Lewis, Lond.; Messrs. Lea Bros. and Co., Philadelphia; Messrs. Lumleys, Lond; Lewisham Union Infirmary, Sec. of; Liquor Carnis Co, Aston Clinton; Lond. Post-Graduate Course, Sec. of; *La Pratique Médicale*, Paris, Editor of; L. O. A., Lond.

M.—Dr. W. Murrell, Lond.; Dr. Modlinski, Moscow; Mr. J. R. Morison, Newcastle-on-Tyne; Mr. B. F. Meadows, Hastings; Mr. J. F. Milner, Chiddingfold; Mr. J. W. Mullen, Eccles; Mr. J. McMurtrie, Glasgow; Mr. J. Meehan, Nottingham; Messrs. Macduff and Co., Lond.; Messrs. J. F. Macfarlan and Co., Lond.; Med. Society of Lond., Sec, of; Med. Society of Victoria, Melbourne, Sec. of; Maltine Manufacturing Co., Lond.; Medicinal, Lond.; M.O.H., Lond.; M., Manchester; M.D., Dublin.

N.—Dr. L. Napier, Glasgow.

O.—Dr. M. D. O'Connell, Army Medical Staff; Oldham Infirmary, Sec. of; Od Chemical Co., New York.

P.—Dr. C. E. Purslow, Birmingham; Rev. Sir J. E. Philipps, Warminster; Miss A. E. Pudney, Earl's Colne; Messrs. S. de Pinto and Son, Leith; Pimlico Road Free Dispensary, Sec. of; Partner, Lond.

R.—Dr. H. D. Rolleston, Lond.; Dr. A. Roberts, Harrogate; Mr. C. Robinson, Kingstown; Mr. L. Revill, Heighington; Mr. A. T. Rimell, St. Brivel's; Messrs. Richardson Bros. and Co., Liverpool; Messrs. Robertson and Scott, Edin.; Messrs. Reynolds and Branson, Leeds; Messrs. J. Richardson and Co., Leicester; Royal Medical and Chirurgical Society, Lond., Sec. of; Royal Microscopical Society, Lond., Treasurer of; *Roxburghe Press*, Lond.

S.—Dr. F. W. A. Stott, Blackpool; Dr. A. Scott, Tollcross; Dr. W. W. Stewart, Columba, U.S.A.; Mr. A. Stenhouse, Glasgow; Mr. F. Sturges, Beckenham; Mr. A. A. Campbell Swinton, Lond.; Mr. S. B. Strekleton, Lond.; Messrs. Street and Co., Lond.; Messrs. Spies Brothers and Co., Lond.; Messrs. Salt & Son, Birmingham; Sanitary Wood Wool Co., Lond., Sec. of; Society of Apothecaries, Lond., Sec. of; *Sunday Magazine*, New York, Editor of.

T.—Dr. C. B. Taylor, Nottingham; Dr. G. Thin, Lond.; Throat Hosp., Golden-sq., Sec. of; T. P., Lond.

V.—Vegetarian Soc., Lond., Sec. of.

W.—Sir Henry Trueman Wood, Lond.; Dr. G. J. Wilson, Oxford; Dr. W. T. Wearing, Lancaster; Dr. H. Weiss, Vienna; Mr. R. W. White, Eastbourne; Mr. S. Wand, Leicester; Messrs. Woodward and Rowley, Swadlincote; Wire-Wove Waterproof Rooting Co., Lond.; Wirral Children's Hosp., Birkenhead, House Surgeon of; West Deroy Union, Guardians of; W. H. H., Lond.

Letters, each with enclosure, are also acknowledged from—

A.—Dr. L. N. Ashworth, Brisbane; Dr. E. Allen, Hawes; Dr. A. E. Ash, Stokeville; Dr. J. Appleyard, Manningham; Mr. H. R. Andreæ, Lond.; Mr. E. Appleton, Stockton-on-Tees; Angio-Swiss Milk Co., Lond.; Apothecaries' Hall of Ireland, Dublin, Sec. of.

B.—Dr. W. Burns, Folkestone; Dr. T. S. Brodie, Houston; Dr. L. A. Baine, Luton; Mr. H. R. H. Bigg, Lond.; Mr. J. Batchelor, Brechin; Mr. B. Brown, Huddersfield; Mr. H. Brown, Buckhurst Hill; Mr. W. Bernard, Londonderry; Mr. W. H. Burnett, Rushden; Mr. E. Blatchley, Lond., Mr. T. Bell, Coatbridge; Mons. O. Berthier, Paris; Messrs. Black and Co., Lond.; Bradford Infirmary, Sec. of; *Birmingham Daily Gazette*, Proprietors of; Bristol Hosp. for Sick Children, Sec. of; B. C., Lond.; Beta, Lond.

C.—Mr. H. Crerar, Adlington; Mr. E. B. Collings, Barnsley; Mr. N. Casey, Birkenhead; Mr. D. J. Carroll, Clonmel; Mr. W. C. G. Collins, Aylesford; Messrs Curtis and Co., Lond.; Messrs. T. Cook and Son, Lond.; Messrs. E. Cook and Co., Lond.; Messrs. Cassell and Co., Lond.; Cambria, Lond.; Capsule, Lond.; Cachet, Lond.

D.—Dr. H. B. Donkin, Lond.; Mr. A. E. Downey, Rathdrum; Mrs. M. G. Dalgliesh, Newcastle-on-Tyne; Mesdames L. and H. Davenport, Ramsgate; Messrs. J. Davey and Co., Lond.; Devonshire Hospital, Buxton, Sec. of; Delta, Lond.

E.—Dr. F. W. Eurich, Whittingham; Mr. F. R. A. Evans, Birmingham; Mr. J. E. Edington, Southport; Eenan, Washington, co. Durham; Epsomian, Lond.; Examination, Lond.

F.—Dr. J. Findlay, Penpont; Dr. T. H. Fiske, Aylesford; Dr. T. Foccas, Cephalonia; Mr. A. Farr, Lond.; Messrs. Farwig and Co., Co., Lond.; Messrs. Foster, Brown, and Co., Montreal; Flower House, Catford, Sec. of; Fides, Lond.; F., Lond; F. M., Lond.; Forceps, Lond.; Ferrum, Lond.

G.—Dr. J. Goldsmith, Lee-on-the-Solent; Dr. H. W. Gardner, Shrewsbury; Mr. G. B Gaston, Bedford; Mr. T. J. Griffiths, Oxford; Mrs. Gann, Hayling Island; Messrs. Gilyard Bros., Bradford; Messrs. Gale and Co., Lond.; Messrs. Goulden and Son, Canterbury; Guest Hospital, Dudley, Sec. of; Gamma, Lond.; Graciiis, Lond.; Guy, Lond.; G. P., Lond.

H.—Dr. L. N. Harding, Bourton-on-the-Water; Dr. Humphreys, Neath, Glam.; Dr. J. F. Harvey, Broken Hill, Australia; Dr. J. Hinshelwood, Glasgow; Mr. E. H. Hankin, Agra, India; Mr. W. H. Hosking, Masterton, N.Z.; Mr. Huish, Croydon; Mr. J. Heywood, Manchester; Mr. J. T. Hislop, Bilton Garth; Mrs. Hitch, Hollington; Hull Corporation, Treasurer of; Halifax Corporation, Town Clerk of; Dr. H. D., Lond.

I.—Investment, Lond.

J.—Mr. F. B. Jessett, Lond.; Jeyes Sanitary Compounds Co., Lond.

K.—Dr. L. Kidd, Enniskillen; Mr. A. Kidd, Dartford; Messrs. Kiesow and Co., Lond.

L.—Dr. J. Lloyd, Birmingham; Dr. C. Lewis, Cheslyn Hay; Dr. H. J. Ley, Handsworth; Mr. N. Lovett, Binbrook; Mr. J. W. Lewis, Brynamman; Mons. Le Soudier, Paris; Messrs. E. Loescher and Co., Rome; Lycurgus, Lond.

M.—Dr. A. H. H. McMurtrie, Belfast; Mr. F. V. Milward, Redditch; Mr. H. Marsh, Lond.; Mr. W. J. McFarland, Smallborough; Mr. W. McCoy, Barnsley; Mr. Marsh, Lond.; Mr. S. Mackay, Cherry Orchard; Mr. M. L. Mackintosh, Crowborough; Messrs. McArnish and Kilgour, Toronto; Messrs. Manlove, Alliott, and Co., Nottingham; Messrs. Maythorn and Son, Biggleswade; Mutual Life Assurance Co. of New York, Lond., Sec. of; Medicus, Devonport.

N.—Mr. A. Nalmy, Ben Sonef, Egypt; Norfolk and Norwich Hospital, Sec. of; National Provident Institution, Lond., Sec. of; Northumbria, Lond.; Norman, Liverpool; Navis, Lond.

O.—Dr. J. S. Owens, Gory; Mr. C. O'Connor, Drogheda; Omega, Lond.

P.—Mr. J. Paterson, Lond.; Provincial, Lond.; Partner, Lond.; Plato, Lond.

R.—Mr. W. J. Rowlands, Thurlestone; Mr. E. W. St. V. Ryan, Lond.; Messrs. Roberts and Co., Lond.; Roscomin, Lond.; R.I.B., Lond.

S.—Dr. E. Sutcliffe, Gt. Torrington; Mr. C. F. Sutton, Holmes Chapel; Mr. T. S. Sutton, Thaxted; Mr. A. G. Southcombe, Lond.; Mr. G. H. Salter, Ballan, Victoria; Miss Shirley, Stoke-on-Trent; Stockton and Thornaby Hospital, Stockton-on-Tees, Sec. of; Sanitas Co., Lond.; Springfield House Asylum, Bedford, Sec. of; Splints, Lond.; Student, Lond.; Statim, Lond.; Surgeon, Anerley; Salus, Lond.; Seaside, Lond.; S. G., Lond.

T.—Dr. A. Tuxford, Boston, Lincs.; Mr. F. Treves, Lond.; Mr. C. C. Tuck, Stowmarket; Mr. J. A. Thornhill, Burton-on-Trent; Mr. J. Thin, Edinburgh; Mr. S. Torbett, Oldham; Mr. C. Thomas, Liverpool; Mrs. Theobald, Leicester; Teignmouth Hospital, Matron of; Tamar Indien Grillon, Lond.; T. P., Lond.,; T., Oldham; Tasma, Lond.

U.—University College, Bristol, Medical School, Sec. of.

V.—Vacancy, Lond.

W.—Dr. J. T. Windle, Ovenden; Dr. W. H. Williams, Stackstead; Mr. J. E. Williams, Chertsey; Mr. T. H. Waller, Chelmsford; Mr. F. W. Waters, Garthmyl; Mr. J. Walker, Northampton; Miss Woodward, Folkestone; Messrs. Woodward and Rowley, Swadlincote; Wolverhampton Hospital, Sec. of.

X.—Xenophon, Lond.; X. Y. Z., Lond.

Z.—Z. W. C., Lond.

SUBSCRIPTION.

POST FREE TO ANY PART OF THE UNITED KINGDOM.

One Year	£1 12 6
Six Months	0 16 3
Three Months	0 8 2

POST FREE TO THE CONTINENT, COLONIES, UNITED STATES, INDIA, CHINA, AND ALL PLACES ABROAD.

One Year	£1 14 8
Six Months	0 17 4
Three Months	0 8 8

Subscriptions (which may commence at any time) are payable in advance.

Cheques and Post Office Orders (crossed "London and Westminster Bank, Westminster Branch") should be made payable to Mr. CHARLES GOOD, Manager, THE LANCET Office, 423, Strand, London.

ADVERTISING.

Books and Publications	... Seven Lines and under	£0 5 0
Official and General Announcements	Ditto	0 5 0
Trade and Miscellaneous Advertisements	Ditto	0 4 6
	Every additional Line	0 0 6
First Page (under Contents) (Books only)	when space available Five Lines and under	0 5 0
	Every additional Line	0 1 0
Quarter Page		1 10 0
Half a Page		2 15 0
An Entire Page		5 5 0

Terms for Position Pages and Serial Insertions on application.

NOTICE.—Advertisers are requested to observe that it is contrary to the Postal Regulations to receive at Post Offices letters addressed to fictitious names or initials only.

An original and novel feature of "THE LANCET General Advertiser" is a special Index to Advertisements on pages 2 and 4, which not only affords a ready means of finding any notice, but is in itself an *additional* advertisement.

THE LANCET can be obtained at all Messrs. W. H. Smith and Son's and other Railway Bookstalls throughout the United Kingdom. Advertisements are also received by them and all other Advertising Agents.

Agent for the Advertisement Department in France—J. ASTIER, 8, Rue Traversière Asnieres, Paris